Unemployment, Employment, and Non-Participation in Canadian Labour Markets

Abrar Hasan
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Acknowledgment

This study was initiated in the context of the research on imbalances undertaken by the Economic Council's Labour Market group in 1980-82. The work of this group culminated in the publication of *In Short Supply: Jobs and Skills in the 1980s*. Some results of our research appeared in Chapter 6 of that publication.

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Of course, we, the authors, are solely responsible for errors and caveats.

1 Introduction

In much of the recorded history of western nations, societal attitudes towards the unemployed have vacillated from charitable concern to harsh criticisms.[1] Economic theories of unemployment have also mirrored this ambivalence, fluctuating from the one extreme of treating unemployment as largely generated by the worker's unwillingness to accept the prevalent conditions of work to the other extreme of attributing unemployment mainly to the inherent inability of labour markets to balance the demand and supply of labour. The debate is not merely one of semantics: the two polar extremes lead logically to policy prescriptions that differ widely. If unemployment is due mainly to workers' characteristics and to their difficulties in locating jobs that are available, then the proper remedy would lie on the supply side in better matching of workers with jobs. If, on the other hand, there are more fundamental difficulties inherent in the operation of the labour market, then government intervention to bring the demand and supply of labour into balance would be required. The high levels of unemployment experienced in the aftermath of the recent recession has heightened the poignancy of this debate about the nature of Canadian unemployment.

The debate has been further compounded by two types of developments. One relates to the demographic and structural shifts that have occurred in the Canadian economy over the past two decades. As a result of these developments, many observers argue that the unemployment rate in the 1980s does not represent the same level of labour market tightness nor the same level of personal hardship as it did in the 1960s. The second development relates to important theoretical innovations during the 1970s both in the economics profession in general and in the field of labour economics in particular, which tended to view unemployment primarily as a status completely determined by the operation of the labour market rather than as a failure of its functioning.

This study focuses on the explanation of the nature of unemployment in Canada. A basic premise is that unemployment cannot be understood in isolation from other states of the labour market, namely, employment and non-participation. Hence, we examine these three aspects of the labour market and their interrelationships.

The Theoretical Issues

The thinking of the classical school of economists on the unemployment issue is best summarized by the work of Pigou (1933). For him, labour markets usually clear and unemployment is merely a temporary departure from the equilibrium state of the market. With perfectly flexible wages, this unemployment soon disappears as unemployed workers reduce their asking wages in order to locate jobs. Simultaneously, employers hire more labour as wages are bid down. In this system of thinking, unemployment is primarily caused by the unwillingness of workers to accept wages offered by the employers. The onus of unemployment is put squarely on the shoulders of the unemployed.

In direct contrast, the Keynesian revolution, reflecting the unemployment impact of the Great Depression, brought with it the notion of involuntary unemployment. Wage inflexibility, according to this view, is a major facet of the labour market and problem unemployment is largely imposed on workers through the periodic inadequacy of aggregate demand in the economy. For a variety of reasons, workers cannot bid wages down[2] and, even if they did so, aggregate demand in the economy would diminish even further so that labour markets would not clear. This view of unemployment was widely accepted in the 1950s.

During the 1960s, this aggregate demand deficiency diagnosis of unemployment was seriously contested by the "structuralist" arguments that contrasted movements in aggregate demand with nonsymmetric behaviour of various sectors in the economy. According to "structuralists," high levels of aggregate demand are not a guarantee of low levels of unemployment, as different sectors of the economy may not be in equilibrium. Changes in technology and changes in the patterns of consumption may keep various sectors in disequilibrium. The policy prescriptions of the two schools of thought differ greatly: the aggregate demand view advocates the use of monetary and fiscal tools to maintain aggregate demand at high levels whereas the structuralist view favours the use of manpower policies of training, mobility, and job creation for achieving a better match between job requirements and worker attributes.

The debate took a decidedly new turn in the 1970s. Developments in the economic literature during this decade, often labeled as the post-Keynesian revolution, have emphasized that labour markets clear rapidly. Observed levels of positive unemployment are seen as arising not from a failure of labour markets to clear but as a productive and rational response of individuals to perceived differences between expected future wages (and prices) and their current values. This intertemporal substitution of leisure theory, first offered by Lucas and Rapping (1970), has received considerable support from extensions of the search theory of Stigler (1961, 1962) on the one hand, and from the theory of contracts[3] on the other. The burden of these theoretical developments is that in an important sense unemployment can be treated as voluntary in nature. Thus, on the theoretical plane, the clock is turned back to the classical view of unemployment. Meanwhile, the development of the "natural rate of unemployment" hypothesis[4] led to the general view that the unemployment-inflation trade-off does not exist in the long run. Together with the rational expectations models,[5] the policy conclusion from the natural rate theory is that aggregate monetary and fiscal policies cannot affect unemployment in the long run. These theoretical developments of the 1970s advocate a policy of "laissez faire."

In parallel, a body of thought has developed into what is known as the "dynamic" or the "turnover" view of labour markets, which popularized the term "new unemployment."[6] This dynamic view emphasizes that labour markets should be studied in terms of movements of people between various states of the labour market over a period of time. This flow concept is contrasted with the more traditional approach that focuses on individuals within a state – the stock concept, relating to a point in time. According to the dynamic approach, the turnover rate – the rate at which persons flow into unemployment – is the critical determinant of the rate of unemployment while the duration of unemployment is of secondary importance. Some demographic groups experience high unemployment rates because they experience unemployment more frequently, not because they are unemployed for a long time. It is claimed that jobs are not lacking but that they are unattractive. Workers leave jobs at a high rate and float from one undesirable job to another. Unemployment in this view is a worker-related problem rather than one due to a general scarcity of jobs. The policy prescription from this perspective focuses on training of workers, job enrichment, and reduction of barriers in the labour market, such as the minimum wage, that prevent hiring of the less skilled. Aggregate demand is not seen as an important policy lever in the long-run perspective. This approach tends to discount the burden of unemployment by pointing out that unemployment is shared among a large proportion of the workforce rather than being concentrated among a small number of participants, since numerous persons flow through the unemployment state. These large flows are seen as part of the equilibrating mechanisms operating in a market that generally clears. Viewed in this perspective, developments in labour economics during the 1970s contributed to a "blame the victim" syndrome.

More recently, the debate has been joined by an influential group of economists that continues to regard unemployment as a symptom of market failure.[7] Clark and Summers (1979), in particular, question the significance of large flows into unemployment as a determinant of the unemployment rate. They argue that a significant minority of the unemployed suffers extended periods of unemployment lasting more than six months. These spells account for a large proportion of total unemployment and suggest that the absence of a sufficient number and appropriate type of jobs, rather than a pattern of unstable jobholding, is the primary explanation of the unemployment experience. As a consequence, they argue that measures to cut the rate of unemployment should focus on these hard-core unemployed rather than on the high frequency, short duration cases. Then job creation is emphasized. Other recent empirical work also finds significant degrees of concentration of unemployment in long and multiple spells of unemployment.[8]

To conclude, the theoretical debate on the nature of unemployment remains largely unresolved. The fundamental starting proposition for some economists continues to be one of a well functioning labour market that generates unemployment only as a matter of temporary aberration, caused primarily by institutional rigidities and interventions in labour markets that work through wage rigidities. For another group of economists, unemployment is largely an outcome of market failure: for a variety of reasons, even if the market is left to its own mechanisms, it would not clear; rather some unemployment would necessarily occur.

A Canadian Perspective

There are remarkably few studies of unemployment in Canada.[9] The literature that does exist relates primarily to the decade of the 1970s. In this literature, the dominant explanations of high unemployment are primarily in terms of institutional and demographic changes. The analysis of the turnover phenomenon that has been undertaken has not given unqualified support to the "new unemployment" view.[10]

Among the institutional changes, the 1972 revision of the Unemployment Insurance Act is thought to have been particularly important. This amendment amounted to considerable liberalization of the law in the form of extended coverage, reduced eligibility requirements, an increased benefit rate, and an extended duration of the benefit period. Several studies suggest that changes in the UI Act had measurable impact on the aggregate unemployment rate.[11] A second institutional arrangement often cited as having significantly altered the nature of the labour market is the minimum wage.[12] Substantial upward adjustments in minimum wages took place in all jurisdictions in 1974, 1975, and 1976. No less than six provinces raised their minimum wage by over 20 per cent in 1974.

Other government programs may also have contributed to a change in the characteristics of the national labour market and of its participants. For example, since the late 1960s, the Canada Manpower Training Program has served about 300,000 clients a year, and this country has disbursed more training funds per labour force member than any other developed nation save Sweden. With various job creation programs, federal and provincial governments have also long played a role to stimulate the demand side of the economy. Then it seems likely that, with this enormous governmental presence in the labour market, a sizable proportion of the workforce has experienced labour market episodes that are quite different from the traditional concepts of work and joblessness.

For such reasons, many observers contend that Canada's labour market changed significantly in the 1970s and that these changes have futher intensified in the 1980s. In view of these changes, the traditional performance measures – particularly the aggregate unemployment rate – do not adequately capture such a rapid evolution. It has been suggested that the degree of tightness signified by a given unemployment rate was much greater in the 1970s than it was in the 1960s.[13] This perception comes close to the view expressed by the turnover school. The emphasis on demographic and institutional factors follows the main thrust of that school.

Outline of the Study

Our first objective in this study is an analysis and an understanding of the operation of the Canadian labour market. The relationships between various states of the labour force are examined, as are the relationships between stock and flow dimensions. This description, which is provided in Chapter 2, serves to present the context in which the turnover view of unemployment is examined. In a nutshell, this view regards unemployment as primarily "frictional," – that is, due to the time taken in moving from one job to another – and "voluntary," – that is, due to workers' choices not to accept jobs that are available:

> [The] picture of a hard core of unemployed persons unable to find jobs is an inaccurate description of our economy and a misleading basis for policy. A more accurate description is an active labor market in which almost everyone who is out of work can find his usual type of job in a relatively short time. The problem is not that these jobs are unavailable but that they are unattractive. Much of the unemployment and even more of the lost manpower occurs among individuals who find that the available jobs are neither appealing in themselves nor rewarding as pathways to better jobs in the future.[14]

More specifically, we study three hypotheses: first, the fact that unemployment flows are much larger than net changes in stocks is evidence suggesting that the burden of unemployment is widely shared among the workforce. Second, the completed duration of unemployment is rather brief, and implies that unemployment imposes limited hardship. Finally, groups with high unemployment rates also have high turnover rates. Not only are their unemployment spells brief but their unemployment episodes are short as well. This observation suggests that unemployment is caused by unstable jobholding patterns exhibited by workers. The analysis of the extent to which these three conclusions apply to the Canadian labour market forms the main body of this study.

Chapter 2 uses gross flow data to decompose the unemployment rate into two components: the risk of becoming unemployed and the duration of unemployment. How the various labour market flows are related to the unemployment rate is also examined.

The objective of Chapter 3 is to go beyond the concept of average duration of unemployment and to look at the distribution of unemployment spells by their length. The approach adopted here removes the restrictive assumption of steady state. The principal hypotheses of this chapter are two:

- the burden of unemployment, instead of being widely shared, is concentrated among few individuals and the relatively few spells of unemployment that are of long-term nature, and

- the concentration of unemployment in long spells is due to the fact that the chances of leaving unemployment worsen as the time spent unemployed lengthens. This decline in the escape rate is due not only to personal characteristics of the unemployed but is also caused by the length of the duration of unemployment itself – the "state dependence" hypothesis.

If these hypotheses are true, then it would appear that the characterization of unemployment as primarily a turnover phenomenon needs to be qualified. If escape rates are state-dependent, demand side factors such as employer choosiness or relative scarcity of jobs could be regarded as factors responsible for this experience.

One reason why the observed unemployment duration may be brief is that many unemployed become discouraged by the poor prospects of locating a job. They exit from the unemployment state not because they have found jobs but because active job search is deemed by them to be fruitless. This type of behaviour reduces the number of individuals officially counted among the unemployed and also the duration for which they are unemployed. If many discouraged workers return to active job search after a period out of the labour force, they would give rise to two effects: the inflow into unemployment would appear greater, and the duration of unemployment shorter. Chapter 4 is designed to examine these issues. The hypotheses examined are:

- the number of working age persons who could be classified as discouraged workers is sensitive to job availability measures;
- the discouraged worker effect is greater for women than for men; and
- many short-duration stints out of the labour force could be regarded as part of a long unemployment spell rather than several brief unemployment spells punctuated by spells out of the labour force.

The existence of long-term unemployment is one indication of general job scarcity. The phenomenon of worker discouragement implies even greater problems of job unavailability than is indicated by a given unemployment rate. Chapter 5 proposes to directly investigate the linkage between aggregate demand measures (a proxy for relative measures of job availability) and the phenomenon of long-term unemployment (LTU). The main hypothesis in this chapter is that LTU fluctuates with aggregate measures of job availability in the economy.

Integral to the flow analysis of labour markets is the notion that each state of the labour market is linked with other states and needs to be examined in the context of developments in these other states. In particular, the nature of employment has important consequences for the characterization of unemployment. This is treated in Chapter 6. The chapter develops measures of average duration of employment and distribution of employment spells by duration.

Chapter 7 is devoted to the study of the labour market experiences of demographic groups. The employment, unemployment, not-in-the-labour-force picture developed at the national level in Chapters 2 through 6 is replicated for eight age-sex groups. This disaggregation permits the study of several hypotheses, especially in regard to the young. The turnover literature argues that youths experience unemployment for very brief periods and that their unemployment rates are high largely because they are exposed to a much greater risk of entering unemployment. It also claims that youths exhibit unstable jobholding patterns. Greater stability of employment for this group would reduce the level of unemployment and improve the chances of subsequent success in the labour market. These are some of the issues examined in Chapter 7.

Chapter 8 examines the Canadian labour market in its regional dimensions. The issue of why unemployment rates are persistently higher in some regions than in others is treated at length. Gross flow data as well as other sources are utilized for this purpose. Hypotheses drawn from the turnover literature are examined for their ability to explain regional differentials in employment, unemployment, and non-participation behaviour.

The study concludes by putting all the pieces together in Chapter 9. The policy implications as well as the limitations of our study are also considered therein.

In brief, the turnover view of the labour market provides the point of departure for this study. A basic premise of our approach is that unemployment cannot be properly understood without taking employment and non-participation in the labour force into account. This calls for a dynamic analysis of individuals moving from one state of the labour market to another rather than a study of the stocks of the unemployed.

For an individual experiencing unemployment, the psychological impact may be quite traumatic. The real burden of unemployment for society may show up in terms of higher suicide and crime rates and in the number of broken homes. The present study does not attempt to deal with these very real issues. Another area that is not explicitly considered relates to technological change. Many experts claim that a major transformation of the labour market is in process. Most current forecasts expect rates of unemployment around 10 per cent for many years to come. Most of the work done for this study was undertaken in late 1981 and early 1982 and related to data for the year 1980 and earlier. Regardless of these transformations, however, the basic findings of this study were tested briefly with the data for the year 1982, when unemployment conditions were in a period of prolonged recession. The findings reported in this study are reinforced by the experience of 1982, which is presented in an Appendix.

2 Unemployment Incidence and Duration

The preceding chapter outlined two very divergent views about the nature of unemployment. Their main differences centre on the emphasis they assign to the two components of the rate of unemployment, namely, the incidence – inflow into unemployment – and the duration of unemployment. At issue is the importance attached to how widely the unemployment experience is shared by the labour force and, once unemployed, how long this experience lasts. For ease of explanation, this chapter explores these relationships within the simplified framework of "steady state" conditions in the labour market. In fact, any of the three labour market states may be analysed in terms of its incidence and duration. In Chapter 6, we will use the gross flow data and the steady state approach to introduce the analysis of the employment duration. However, we will also attempt to remove the limitations imposed by this methodology.

In contrast to the traditional approach, which is based on stock data, we focus on the movement of persons among various states of the labour market. The relative novelty of our data requires a word of introduction, before we examine the relationship between the rate of unemployment and its two components. We conclude the chapter with a discussion of the concept of duration of unemployment and of its limitation for measuring the burden of unemployment.

Stocks and Flows in the Labour Market

The labour market figures published each month by Statistics Canada are drawn from the monthly Labour Force Survey (LFS) which is addressed to 55,000 households in the 10 provinces. (The two territories, Indians in Reserves, and inmates of institutions are not surveyed.) Based upon this monthly survey, the working-age population (aged 15 years and over) is classified as being in the labour force (L) or as not in the labour force (N). The labour force itself is divided into those employed (E) and those unemployed (U). This categorization of the labour market, frozen at an instant in time, is known as the "stock" concept, and forms the basis of traditional discussions of the unemployment problem.

These stock figures are, however, subject to change through the inflows to and outflows from the relevant labour market pools. Beginning with the early 1970s, economists began to emphasize that the understanding of the nature of unemployment could be improved considerably by focusing on these flows, the so-called dynamic movements, which occur not at an instant in time, but over a period of time.

The Gross Flow Data

It is useful at this point to introduce the gross flow data. These data are based on the LFS in which one-sixth of the sample is rotated-in each month and is surveyed for the next five. This means that five-sixths of the sample is identical between any two consecutive months and can be matched to trace a person's labour force experience for the current and the previous months. This approach provides a measure of the number of people who remain employed, unemployed, or out of the labour force, or who move between these states, after adjustments are made to compensate for the five-sixths sample.

This so-called "matching method" of determining gross flows should be distinguished from the "recall method" where respondents to the survey are asked about their labour force status in the previous month at the same time as they report their current status. As the name suggests, data based on the latter approach are subject to recall problems – more specifically when memory must recall over a long time period. Although these problems are avoided in our data they are, nevertheless, subject to errors arising from the possibility that an unchanged situation may be reported differently in two consecutive months or a changed situation may be reported as if there were no change. Because of this reporting problem, it is often acknowledged that flow numbers – and consequently transition probabilities – may be somewhat inflated. Additional problems are caused by attrition in the sample so that the full five-sixths of the sample may not be matched.[1]

The gross flow data derived from the LFS imply nine flows among and within the three states of the labour market – namely, employed, unemployed, and not in the labour force. They can be represented in the form of a matrix, as shown in Table 2-1. In order to maintain consistency, the flow data are adjusted to the published stock data by Statistics Canada for the state of origin of the flow.

Table 2-1

Matrix of Gross Flows in the Labour Market

Labour force status in previous month (*t*-1)	Labour force status in current month (*t*)		
	E(*t*)	U(*t*)	N(*t*)
E(*t*-1)	EE	EU	EN
U(*t*-1)	UE	UU	UN
N(*t*-1)	NE	NU	NN

The term *EE* represents a continued stay in the employment state between the two months. It should be noted that the matching method cannot take into account events that occur during the interval of the two surveys. Continued employment at two consecutive survey dates, for example, may mean termination of one job and the beginning of another. A short spell of unemployment occurring during the interval would also be ignored. In most cases, however, the same job continues from one month to the next. Other entries in the matrix may similarly be interpreted as a move from one state, denoted by the first letter, to another (or the same) state, denoted by the second letter. From these data, we can derive monthly transition rates by dividing the number of people in each specific flow by the number of people in the initial state. Using lower case letters to designate these transition rates, we can describe *ue*, for example, as the monthly probability that an unemployed person in month ($t-1$) would become employed in month *t*; it is obtained by dividing *UE* by $U(t-1)$. By the same token, the probability of staying in the same state – the retention rate – is given by *uu* in the case of unemployment and *ee* in the case of employment.

To place the movements of the labour force in the perspective of stock data, the relative sizes of stock and flow data are compared in Table 2-2 for the period January-February 1981. Over this period, unemployment decreased from 945,000 to 928,000, a drop of only 17,000. But behind this net change in the "stock" were large flows: some 367,000 flowed into the pool of the unemployed (152,000 who were formerly employed plus 215,000 formerly inactive), while 399,000 flowed out (225,000 who became employed plus 174,000 who left the labour force), and there was a net addition of 15,000 to the working-age population who were also unemployed in February.

These large monthly transitions between various states of the labour market suggest that the market is in constant flux and that stock figures may conceal important aspects of behaviour in this market. A second point that emerges is the interrelationships between employment, unemployment, and non-participation. These interrelationships suggest that an examination of the unemployment state, for instance, would not be complete if we look at this state by itself. An unemployment episode can, for example, terminate in two ways: in employment or in exit out of the labour force. The significance of the umemployment episode is quite different depending on its outcome. For a more complete analysis then, unemployment should be studied in conjunction with the other two states of the labour market.

A Description of Flows in the Labour Market

The probabilities of moving from one state to another are depicted in Table 2-3 for the year 1980. This table reveals a high degree of flux in the labour market. Some 4.1 per cent of employed persons ($eu + en$ = 1.55 + 2.57 per cent) left employment each month (the retention rate being 95.9 per cent), and some 6.7 per cent of persons outside the labour force ($ne + nu$) joined it. Although these percentages

Table 2-2

Labour Market Stocks and Flows, January-February 1981

	Total	Labour market status in February 1981: Employed	Unemployed	Not in the labour force
		(Thousands)		
Labour market status in January 1981:				
Employed	10,462	10,115	152	195
Unemployed	945	225	546	174
Not in the labour force	6,758	238	215	6,305
Working-age population in January	18,165	10,578	913	6,674
Net increase between January and February	27	5	15	8
Working-age population in February	18,192	10,583	928	6,682

SOURCE Estimates by the authors, based on data from Statistics Canada.

Table 2-3

Labour Market Transition Rates, Monthly Average, 1980

	Worker status current month:			
	Employed	Unemployed	Not in the labour force	Total
	(Per cent)			
Worker status previous month:				
Employed	*ee*	*eu*	*en*	
All	95.88	1.55	2.57	100.0
Men	96.57	1.63	1.80	100.0
Women	94.85	1.42	3.73	100.0
Unemployed	*ue*	*uu*	*un*	
All	23.97	56.99	19.03	100.0
Men	25.37	59.80	14.83	100.0
Women	22.27	53.58	24.15	100.0
Not in the labour force	*ne*	*nu*	*nn*	
All	3.79	2.93	93.28	100.0
Men	5.36	4.38	90.26	100.0
Women	3.13	2.32	94.55	100.0

SOURCE Estimates by the authors, based on gross flow data supplied by Statistics Canada.

may not appear to be large, they represent large numbers of persons, since the stocks of employed and non-participants are by themselves very large. In relation to the unemployment state, some 43 per cent of the unemployed left this state on average each month in 1980 either by finding a job (ue = 23.97 per cent) or by withdrawing from the labour force (un = 19.03 per cent).

We can define a composite transitional probability, pne, to denote the proportion of labour force entrants (or re-entrants) who find a job immediately ($pne = ne/(ne + nu)$), a concept which will be used later. It should be noted that some 56.4 per cent of labour force entrants or re-entrants make this transition directly into a job. The remainder, 43.6 per cent, enter the labour force as unemployed.

The comparison of transition rates for men and women shows several relevant features.

- Men present a much lower exit rate ($eu + en$) from employment (3.4 per cent versus 5.2 per cent for women) mainly because women alternate periods of employment relatively more often with periods not in the labour force.
- The same pattern appears to hold for unemployment as well where women have a much higher probability of leaving the labour force as an outcome of their unemployment spells (24.2 per cent compared with 14.8 per cent for men).
- The entry rate to the labour force is higher for men than for women (9.7 per cent versus 5.5 per cent) but this should be seen in the perspective of a base population (not in the-labour-force status in the original month) for women, which is more than twice as large than that for men.
- The probability of a successful entry or re-entry to the labour force is higher for women; this gives us the first hint of a labour market behaviour sensitive to the availability of jobs.

The unceasing flux in and out of the unemployment pool is not captured by the stock figures. The rate of unemployment itself does not provide an indication of how widely unemployment is experienced by the workforce. The unemployment rate for the year 1979 averaged on the basis of stock data was 7.5 per cent (Table 2-4). But Statistics Canada's Annual Work Patterns Survey (AWPS) reveals that some 21.5 per cent of those with some labour force participation during the year experienced some unemployment in

Table 2-4

Unemployment, 1979

	Official unemployment rate	Unemployed at some time during the year as a share of persons in the labour force at some time during the year
	(Per cent)	
All	7.5	21.5
Men	6.6	19.5
Women	8.8	24.0

SOURCE Statistics Canada, The Labour Force, cat. no. 71-001, December 1979, and special tabulations from Statistics Canada's Annual Work Patterns Survey, 1980.

1979 (Table 2-4). This survey is made along with the December or January Labour Force Survey, but requires respondents to recall their labour force experience over the course of the preceeding year.[2] One in five men and one in four women participants to the labour force had a bout of unemployment. These data point out very clearly that unemployment touches a much larger proportion of the workforce than is apparent from the unemployment rate figures published each month.

Components of the Unemployment Rate

The foregoing discussion is intended to establish the need to look at the labour market in its dynamic setting. In this perspective, we now wish to investigate the relationship between the rate of unemployment and various flows in the labour market. This issue has been investigated for the United States by Marston (1976) in the context of the steady state framework. The steady state assumption requires the equality of flows into and out of each state. The flows into unemployment, for example, just equal the flows out of it:

$$(eu)\,E + (nu)\,N = (ue + un)\,U \qquad (2.1)$$

and the flows in and out of employment are also equal to each other:

$$(ue)\,U + (ne)\,N = (eu + en)\,E \qquad (2.2)$$

From these two equations, it is possible to derive a flow expression for the unemployment rate. We eliminate N and using pne as defined earlier – $pne = ne/(ne + nu)$ – a relationship between E and U can be developed so that:

$$\alpha E = \beta U \qquad (2.3)$$

where

$$\alpha = eu + (1 - pne)\,(en) \qquad (2.4)$$

$$\beta = ue + (pne)\,(un) \qquad (2.5)$$

From equation 2.3, the unemployment rate, u, can then be written as:

$$u = U/(U + E) = \alpha/(\alpha + \beta) \qquad (2.6)$$

which expresses the rate of unemployment in terms of flows in the labour market.

Incidence, Duration, and the Unemployment Rate

The question now is to relate these flows to the two aspects of the unemployment rate that we wish to highlight, namely, the incidence and the duration of unemployment. A moment's reflection would reveal that the unemployed pool at any time consists of two elements: the number of persons who have just entered the state of unemployment – the inflow into the pool – and the number of persons who are already there. The inflow is quite easily described in terms of flows: it consists of *eu* and *nu*. The duration of unemployment depends on how long, on average, an individual entering the state of unemployment expects to stay in that state; it is thus related to outflows of unemployment, *ue* and *un*. Conceptually, then, the number unemployed, U, can be decomposed into two elements, the inflow into unemployment, I_U, and the average duration of unemployment, D_U:

$$U = I_u \cdot D_u \qquad (2.7)$$

Dividing both sides of equation 2.7 by the labour force, L, we have:

$$\frac{U}{L} = \frac{I_u}{L} \cdot D_u \qquad (2.8)$$

where

U/L = the familiar notion of the unemployment rate, u, and,

I_U/L = the inflow into the unemployment state, i_U, expressed as a proportion of the labour force.

Equation 2.8 can then be written:

$$u = i_u \cdot D_u \qquad (2.9)$$

This formula can be intuitively explained by the following example. A 5 per cent unemployment rate may be composed of an inflow into unemployment of 1 per cent of the labour force and an average duration of 5 months [$i \cdot D$ = 1 per cent x 5 months]. Or, taking another extreme, 5 per cent of the labour force may enter unemployment each month and stay unemployed for one month on average [$i \cdot D$ = 5 per cent x 1 month]. The resulting unemployment rate in both cases is the same, but the manifestly different policy relevance of the two situations makes the decomposition exercise highly useful.

In the context of the steady state equilibrium, the term D_U itself can be expressed in terms of transition rates out of unemployment, *ue* and *un*, and written as:

$$D_u = 1/(ue + un) \qquad (2.10)$$

where the term ($ue + un$) is nothing but ($1 - uu$), or one minus the retention rate. Thus equation 2.9 can be rewritten as:

$$u = [i_u/(ue + un)]$$

or

$$u = [i_u/(1 - uu)] \qquad (2.11)$$

which describes the unemployment rate in terms of the inflow into the unemployment pool and the expected length of stay in this state.

Equations 2.6 and 2.11 are used to estimate the unemployment rate and its two components for the year 1980 (Table 2-5).

Table 2-5

Unemployment Rate and Its Components, Monthly Average, 1980

	Unemployment rate		Incidence of unemployment	Duration of unemployment
	Actual	Calculated		
	(Per cent)			(Months)
All	7.5	7.2	3.07	2.33
Men	6.9	6.8	2.73	2.49
Women	8.4	7.7	3.57	2.15

SOURCE Statistics Canada, The Labour Force, cat. no. 71-001, December 1980, and estimates by the authors, based on gross flow data provided by Statistics Canada.

Two rates of unemployment are depicted in this table, one estimated on the basis of equation 2.6 and the other (actual) published by Statistics Canada on the basis of stock data. Although the two rates are close, they are not identical. This happens because of the simplifying assumption of steady state used in deriving equation 2.6. The stringent requirement that the inflow is equal to the outflow, for each state of the labour market, is not likely to be met in practice. Growth in the working-age population alone makes that unlikely. In addition, long-term trends in the participation rates and the impact of business cycles continually disturb the steady state operation of the labour market. It is no surprise, therefore, that the estimated unemployment rates in Table 2-5 differ from the published unemployment rates, and that the divergence for females is greater than is the case for males. The use of the steady state assumption rests essentially on convenience. An equivalent formula for the nonsteady state conditions would be extremely complicated.[3]

Despite its approximate nature, it should be noted that the steady state assumption serves the essential purpose for which it is invoked: it helps us to shed light on the relationship of the unemployment rate to its two components. It can be observed from Table 2-5 that, while both these components play important roles in the determination of the unemployment rate, the incidence of unemployment (as a proportion of the labour force) is the dominant factor. In 1980, some 3.07 per cent of the labour force became unemployed each month and, once unemployed, remained unemployed for a period of two months and ten days. Several conclusions stand out from this table. First, a comparison of the first and third columns reveals that higher unemployment rates are associated with higher incidences of unemployment. Second, the group with the higher unemployment rate most often experiences a shorter duration of unemployment. Taken together, these two findings suggest that the primary explanation for a high unemployment rate for any group should be sought in its higher likelihood of experiencing a bout of unemployment and not in the length of unemployment spell, once it is experienced. Finally, the average duration of unemployment itself is somewhat brief. Although the data in Table 2-5 relate to the year 1980, our findings also apply in the case of other years examined (1976-79).

It is these kinds of data that have led an influential group of labour economists to emphasize the importance of turnover in the labour market and to de-emphasize the duration aspect in the determination of the unemployment rate. They see higher unemployment rates for a demographic group as being caused principally by the tendency of the group to enter unemployment more frequently. This argument receives further support from the data on more detailed demographic groups presented in Chapter 7. The fact the groups with higher unemployment rates are unemployed for shorter periods suggests that high unemployment rates may not be an accurate index of the burden of unemployment, they argue. As we shall see later, however, this interpretation is subject to several stringent qualifications.

Transition Probabilities and Unemployment Rate Differentials

As we saw from equation 2.6, the unemployment rate may be decomposed in terms of labour market flows alone. Each of the flows indicated in Table 2-3 enters into the determination of the unemployment rate. An analysis of their relative contribution may be made by comparing the unemployment rates of men and women. The contribution of each flow to the total differential between their unemployment rates may be identified by using equation 2.6. The contribution of each flow then follows from the following formula:

$$\Delta u = \sum_i \frac{\partial u}{\partial p_i} \Delta p_i \qquad (2.12)$$

where

p_i = one of the five transition rates included in the flow definition of the unemployment rate,

$\partial u/\partial p_i$ = the partial derivative of the unemployment rate with respect to the transition rate p_i, and

Δu = the total difference in the unemployment rates being considered.

Estimates based on equation 2.12 are presented in Table 2-6 for the year 1980.

Table 2-6

Contribution of Labour Market Flows to the Unemployment Rate Differential between Women and Men, 1980

	Labour market flow					Total difference
	eu	*en*	*ue*	*un*	*pne*	
	(Percentage points)					
Difference in unemployment rate for women	-0.52	2.09	0.60	-1.02	-0.25	0.90

SOURCE Estimates by the authors, based on gross flow data supplied by Statistics Canada.

In 1980, the unemployment rate for women was 0.90 percentage points larger than the rate for men, which is used as a reference point. The flows depicted under *en* and *ue* tended to raise the unemployment rate for women relative to men, while other flows contributed to lower it. The largest single contribution to their higher unemployment rates can be traced to the flow from employment to out of the labour force (2.09 percentage points). The flow from unemployment to employment is the other factor (0.60 percentage points). Thus job separations, often in the form of high rates of labour force withdrawal, appear to lie at the heart of higher unemployment rates for women. The impact of all other flows combined is somewhat secondary. It is also noteworthy that the success rate in finding a job on entry or reentry into the labour force serves to lower the unemployment rate for women. That is, once out of the labour force, the chances of their finding work are marginally better, rather than worse, than is the case for men. But once unemployed, women have greater difficulty in transiting to jobs, and they tend to drop out of the labour force in relatively larger numbers. In consequence, withdrawals from the labour force after being unemployed lower their rate of unemployment relative to men (by 1.02 percentage points).

The Concept of Average Duration of Unemployment

The preceding section noted that the average unemployment spell in the Canadian economy is rather brief. The literature on "new unemployment" has interpreted the brevity of these spells to signify that jobfinding is easy. To evaluate this interpretation, we examine the issue of the appropriate method of measuring the average duration of unemployment. A second and much broader issue relates to the appropriateness of average duration measures as indicators of the ease or difficulty of jobfinding. This second issue is treated in the following chapters.

The seemingly simple concept of average duration of unemployment is open to several interpretations and the resulting empirical measures can diverge, often significantly. The concepts that we refer to here are analogous to those used in the population census. As with the concept of "life expectancy at birth," there is an expected duration of unemployment spells that can be anticipated when a spell begins. Following Akerlof and Main (1981), we denote this by S_{IW}, as explained below. The average duration of in-progress spells of unemployment, designated here by T, is similar to the census concept of the "average age of the population currently alive." Finally, the eventual duration of unemployment spells that are currently in progress, designated by S_{EW}, is the counterpart of the census concept of the "expected life span of persons currently alive."

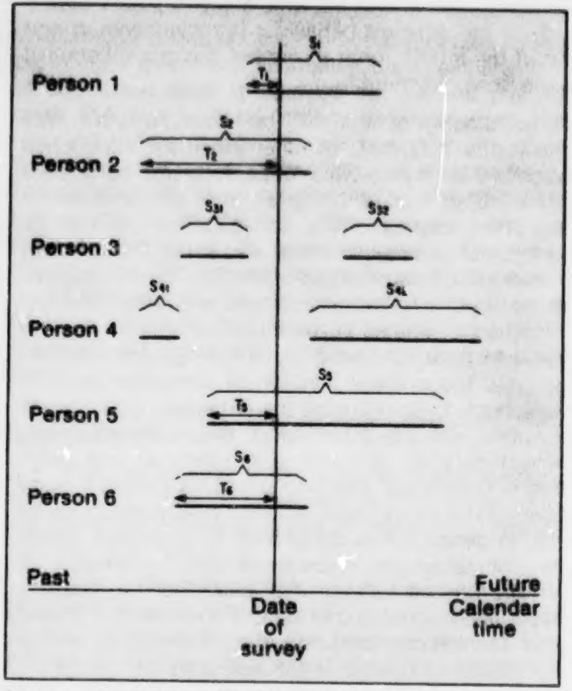
Since the seminal work of Kaitz (1970), economists have distinguished between the "in-progress" spell measure and the "completed" spell measure. Their relationships were subsequently explored by Salant (1977), and may be explained with the help of Chart 2-1. Consider a survey being undertaken at date t_0, at which time spells for persons 1, 2, 5, and 6 are in progress; the observed portion of spells are T_1, T_2, T_5, and T_6. The survey interrupts these spells and the average duration of unemployment based on these interrupted spells would be:

$$T = (T_1 + T_2 + T_5 + T_6) / 4$$

An example of this in-progress (or interrupted) spell measure is the estimate made available each month by Statistics Canada. This survey gathers information on all unemployment spells that are currently in progress. Using this information up to the date of the survey, an average duration measure is computed. This measure has the obvious weakness that spells taken into account are incomplete. Thus it suffers from the "interruption bias." At the same time, it also suffers from the "length bias," which operates in the opposite direction. This bias refers to the fact that longer spells have a greater probability of being captured in a given survey than are shorter spells.

Chart 2-1

In-Progress and Completed Unemployment Spells



SOURCE Adapted from Akerlof and Main (1981).

The completed spell measure, as the name indicates, allows each spell to continue till it terminates, either in employment or in exit out of the labour force. In terms of Chart 2-1, the average length of unemployment based on completed spells is given by:

$$S_{EW} = (S_1 + S_2 + S_5 + S_6) / 4$$

where S_{EW} stands for "experience-weighted" (completed) spells of unemployment.

The third concept relates to the measure of *expected* length of unemployment at the time an unemployment spell begins. In terms of Chart 2-1 this measure is defined by:

$$S_{TW} = (S_1 + S_2 + S_{31} + S_{32} + S_{41} + S_{42} + S_5 + S_6) / 8$$

where S_{TW} stands for "termination-weighted" (completed) spells and consists of the average length of all spells of unemployment, where the spells are not defined to be those in progress at a given point in time, but are comprised of all spells that terminate over a given period of time.

Let us now examine the relationship between these three measures. The termination-weighted completed spell measure is briefer than the experience-weighted measure, because S_{TW} weights all spells equally whereas S_{EW} uses the weight of actual experience. The application of the S_{EW} formula would contain some length bias if the surveys on which the data are based fail to capture spells of all durations. For example, in terms of the LFS, the short spells that fall between the two monthly surveys are not captured. To this extent, the application of S_{EW} methodology to LFS data would suffer from some upward bias.

In demography, life expectancy at birth – analogous to our S_{TW} – is dramatically different from the average life expectancy of a population – which is similar to our S_{EW}. As to the empirical relationship between S_{EW} and S_{TW}, Akerlof and Main (1981) report that, from 1948 to 1978, the ratio of the two statistics has fluctuated between three and five for the U.S. economy. This S_{EW} measure has special relationship with the average based on in-progress spells, *T*. It has been shown by Salant (1977) that under steady state conditions $S_{EW} = 2T$. The measured S_{TW} could, in principle, be equal to or shorter or longer than *T*, which also suffers from length bias. Empirically, using U.S. data for the period 1948 to 1969, Kaitz (1970) estimates that the average length of a termination-weighted completed spell, S_{TW} is in the range of 40 to 62 per cent of the average length of spells in progress, *T*.

The foregoing discussion suggests that great care needs to be exercised in the choice and interpretation of the data on average duration of unemployment. The most publicized measure is the in-progress spell measure, *T*, which suffers from both the interruption and the length bias, as noted above. The measure S_{EW} suffers from length bias. The most appropriate measure is one based on completed spells and avoids these biases. For some purposes, it is useful to know the expected duration of an unemployment spell when it begins, the S_{TW} concept; for others, information is required on how long the spells currently in progress are going to last, the S_{EW} concept. The data provided earlier in the chapter are close to the S_{TW} concept, since they are based on the formula, $1/1-uu$, which is assumed to take all spells into account. This measure is compared with others in Table 2-7. The S_{EW} measure is obtained by doubling *T* under steady state assumptions. Both the $1/1-uu$ and the S_{EW} measure suffer from the fact that, in the LFS, many short spells of unemployment are not captured.

Conclusion

This chapter develops the dynamic approach to the study of labour markets in the context of the

Table 2-7

Alternative Measures of Average Duration of Unemployment, 1976-80

	In-progress spells*	Completed spells†	
	T	$\frac{1}{1 - uu}$	$S_{EW} = 2T$
	(Months)		
1976	3.21	2.19	6.42
1977	3.35	2.35	6.70
1978	3.58	2.41	7.16
1979	3.44	2.27	6.88
1980			
All	3.42	2.33	6.84
Men	3.49	2.49	6.97
Women	3.33	2.15	6.65

*Weekly data are converted into monthly estimates using 4.33 weeks per month.

†Based on the steady state assumption.

SOURCE Statistics Canada, The Labour Force, cat. no. 71-001, and estimates by the authors, based on gross flow data provided by Statistics Canada.

steady state assumption. The traditional concept of the unemployment rate is then related to this dynamic view, and is decomposed in terms of the incidence and the duration of unemployment. It is found that incidence is the major determinant of the relative levels of unemployment rates; variations in the duration of unemployment, which are in the opposite direction, do not compensate for differences in incidence. The role of various flows in determining the unemployment rate experience of men and women is also examined. This analysis points essentially to the different behaviour in movements in and out of the labour force to explain the sex differential in the unemployment rate.

The stock concept of the unemployment rate masks the fact that the unemployment experience touches a large proportion of persons who participate in the labour market. Many of these episodes are of very short duration and in consequence the average duration of unemployment is also brief. The concept of average duration of unemployment itself is open to several methods of measurement and interpretation. Published estimates of duration suffer from several weaknesses which, generally speaking, overstate the average. The average duration of completed spells is quite brief, if viewed from the expected length at its inception. On the other hand, the expected (completed) duration of spells in progress at any given time is quite long. The two concepts measure quite different things and have different policy relevance as well. In general, it is dangerous to generalize about the unemployment experience from measures of average duration without first clarifying the measure that is being used. In this light, it is useful to consider other aspects of distribution of spell lengths as well, a task that is undertaken in the next chapter.

3 The Concentration of Unemployment

This chapter builds upon the preceding discussion by providing a method of estimating the average length of completed spells that does not depend directly upon the steady state assumption. However, the resulting estimates do not diverge significantly from those provided earlier. When allowance is made for other data limitations, the conclusion that the average length of completed unemployment spells in Canada is brief is, in fact, reinforced. The main objective of this chapter, then, is to examine the usefulness of the data on average duration as a measure of the burden of unemployment and as an adequate characterization of the nature of unemployment.

More specifically, the chapter examines two hypotheses:

- that, regardless of the brevity of the average spell length, much of unemployment experienced in the Canadian economy is not of the short duration, turnover type; and
- that a disproportionate amount of total unemployment is contributed by long spells, a fact that cannot be explained on the basis of the random chance of finding employment. In other words, the escape rate out of unemployment decreases progressively as the duration of unemployment increases.

Empirical support for these two hypotheses would have important implications for public policies dealing with unemployment: in such an event, long-term unemployment, rather than the short term, turnover type, should form the focus for these policies.

The chapter is organized as follows. The method of estimating the average duration of completed spells without resorting to the steady state assumption is first outlined. The concepts of distribution of unemployment spells and total unemployment contributed by various spell lengths is also discussed. These approaches are used to derive empirical estimates. The determinants of declining escape rates are examined.

Methodology

To develop alternative estimates of the average duration of completed spells without directly relying on the steady state assumption, we resort to the use of "hazard functions" in the manner of Clark and Summers (1979). A *hazard function* relates the probability of exit from a state to the length of time spent in the state. In our present analysis, we derive separate functions for the transitions out of unemployment to employment and to out of the labour force. The transition probabilities are obtained by dividing the flows by the corresponding unemployment stocks (Table 3-1).

Table 3-1

Transition Probabilities for Unemployed Workers, 1980

	Become employed *ue*	Remain un-employed *uu*	Leave the labour force *un*
		(Per cent)	
Duration of unemployment			
4 weeks or less	30.73	47.65	21.61
Between 5 and 8 weeks	23.45	56.78	19.77
Between 9 and 13 weeks	19.71	62.54	17.75
Between 14 and 26 weeks	16.80	66.79	16.42
27 weeks or more	11.95	69.77	18.28
Average	23.97	56.99	19.03

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

The hazard functions are derived by using regressions to fit a smooth curve through the midpoint of each duration period (or the weighted median of the open-ended duration). After experimenting with several functional forms, we chose the double-log function to fit the curve for the probability of exit from unemployment by getting a job, *ue*. In the case of the probability of labour force withdrawal from unemployment, *un*, the escape probability first decreases and, having attained a minimum, starts increasing again. Thus, we selected the Hoerl functional form as being the best approximation of the hazard function. The two equations used are the following:

$$ln\ ue = \alpha_1 + \beta_1\ ln\ t + u_1 \qquad (3.1)$$

$$ln\ un = \alpha_2 + \beta_2\ ln\ t + \gamma_2 t + u_2 \qquad (3.2)$$

where

t = the time period,
α, β, and γ = coefficients to be estimated, and
u_1 and u_2 = disturbance terms.

Examples of estimated hazard functions are shown in Table 3-2. Despite the limited number of observations, the estimates are statistically robust.

Table 3-2

Hazard Functions for Transition Probabilities of Unemployed Workers, 1980†

All				
$\ln ue$ =	-0.8339	-0.3386 $\ln t$		$\bar{R}^2$ = 0.9713
	(0.073)*	(0.029)*		F = 136.45
$\ln un$ =	-1.3508	-0.1985 $\ln t$	+ 0.0087 t	$\bar{R}^2$ = 0.8284
	(0.075)*	(0.049)***	(0.003)	F = 10.65
Men				
$\ln ue$ =	-0.7503	-0.3402 $\ln t$		$\bar{R}^2$ = 0.9149
	(0.130)**	(0.051)*		F = 44.04
$\ln un$ =	-1.6937	-0.1392 $\ln t$	+ 0.0065 t	$\bar{R}^2$ = 0.7768
	(0.058)*	(0.038)***	(0.002)	F = 7.96
Women				
$\ln ue$ =	-0.9374	-0.3433 $\ln t$		$\bar{R}^2$ = 0.9896
	(0.044)*	(0.018)*		F = 383.39
$\ln un$ =	-1.0726	-0.2214 $\ln t$	+ 0.0094 t	$\bar{R}^2$ = 0.8122
	(0.091)*	(0.060)***	(0.004)	F = 9.54

*Significant at the 1 per cent level.
**Significant at the 5 per cent level.
***Significant at the 10 per cent level.
† Standard error in parentheses.
SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

The estimated hazard functions are then used to create monthly transition probabilities from which are derived the distribution of completed spells. These spells are of two types: those ending in employment and those ending in labour force withdrawal. The proportion of spells ending in labour force withdrawal after t months is given by:

$$h_{un}(t) = \prod_{j=1}^{t-1} (1 - un^j - ue^j)\, un^t \qquad (3.3)$$

where un^j and ue^j are the transition probabilities of leaving unemployment for non-participation and for employment, respectively, during the j^{th} month of unemployment. Likewise, a distribution $h_{ue}(t)$, can be obtained for the proportion of spells ending in employment.

The estimated spell distributions provide the basis for estimating the mean duration of a completed spell. This measure, D_u, can be computed as follows:

$$D_u = \frac{\sum_{t=1}^{\infty} (h_{un}(t) + h_{ue}(t))\, t}{\sum_{t=1}^{\infty} (h_{un}(t) + h_{ue}(t))} \qquad (3.4)$$

where the term ∞ is replaced by the value of $t = 24$ for the estimation purposes. Notice that the assumption of steady state is not invoked, since all the terms in equation 3.4 are based on the actual data as observed.

At this point, a different concept – the fraction of total unemployment attributable to spells of different durations – may be introduced, since it is used extensively in the discussion below. Consider the following example. Suppose that, each week, 20 spells of unemployment lasting one week are initiated, plus one spell lasting 20 weeks. Thus, 40 weeks of unemployment are generated by 21 spells, giving a mean duration of completed spells of about 1.9 weeks. However, half of all unemployment is accounted by the single spell lasting 20 weeks. In order to obtain the fraction of unemployment attributable to various spell lengths, we need first to estimate the proportion of spells lasting more than t periods. In the case of withdrawal spells, the proportion of spells of unemployment lasting t periods, $H_{un}(t)$ may be computed as:

$$H_{un}(t) = \sum_{j=t+1}^{\infty} h_{un}(j) \qquad (3.5)$$

A similar term $H_{ue}(t)$ can be derived by symmetry. The proportion of total unemployment accounted for by each spell length can be calculated from the density function of H_{un} and H_{ue}. Then, π_{un}, the proportion of unemployment attributable, for example, to labour force exiters is:

$$\pi_{un} = \frac{\sum_{j=0}^{\infty} H_{un}(j)}{\sum_{j=0}^{\infty} H_{un}(j) + \sum_{j=0}^{\infty} H_{ue}(j)} \qquad (3.6)$$

and analogously for π_{ue}. Finally, the proportion of unemployment accounted for by those with spells exceeding k months when they are completed can be computed:

$$\pi^k = \frac{\sum_{j=k}^{\infty} (H_{un}(j) + H_{ue}(j)) + (k)(H_{un}(k) + H_{ue}(k))}{\sum_{j=0}^{\infty} H_{un}(j) + \sum_{j=0}^{\infty} H_{ue}(j)} \qquad (3.7)$$

Completed Spells of Unemployment

Average Duration

The average duration of completed spells is depicted in Table 3-3. The hazard function estimates are compared with estimates described in the previous chapter for all searchers. The hazard function estimates are lower in every case considered, although the differences in most cases are marginal, mostly of the order of one-tenth of a month. It would therefore appear that escape rates are declining, as in the hazard function case, rather than constant, as in the constant escape rate assumption implied in the formula used in the preceding chapter. Removing this assumption provides us with even lower estimates of the average length of completed spells. On average, completed spells of unemployment in Canada are indeed brief – they ranged between two months and two and a half months during the 1976-80 period (Table 3-3). We also find that spells of unemployment experienced by women were generally about a week shorter than those of men.

Table 3-3

Average Duration of Completed Unemployment Spells, 1976-80

	Constant escape rate	Hazard function estimate	"Indomitable searcher" hypothesis*
		(Months)	
1976			
All	2.19	2.06	4.22
Men	2.30	2.17	3.82
Women	2.06	1.94	4.81
1977			
All	2.35	2.27	4.58
Men	2.43	2.38	4.13
Women	2.25	2.15	5.18
1978			
All	2.41	2.31	4.63
Men	2.52	2.45	4.21
Women	2.30	2.16	5.19
1979			
All	2.27	2.16	4.39
Men	2.40	2.31	4.03
Women	2.14	2.01	4.88
1980			
All	2.33	2.21	4.48
Men	2.49	2.38	4.14
Women	2.15	2.04	4.94

*See text for definition.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

The mean duration figures for all searchers would be even lower if allowance were made for one peculiarity of the LFS, upon which our estimates are based. As is well known, the LFS is conducted once every month. Those short unemployment spells that begin and end between two surveys cannot therefore be captured and, consequently, there is an unavoidable upward bias in the source data itself.

Consider now the issue of exit out of the labour force (Table 3-4). As we pointed out earlier, unemployment spells can be terminated either by finding a job or by withdrawing from the labour force. The brevity of the completed spells experienced on average by searchers, as shown above, suggests that some unemployed can find jobs very quickly. But in fact, as many as 44 per cent of all unemployment spells end in labour force withdrawal. For women, this percentage is as high as 52 per cent. Clearly, one needs to examine more closely the motivations for the labour force withdrawals – an issue that will be taken up in Chapter 4. At this stage, it may be useful

Table 3-4

Proportion of Unemployment Spells Ending in Labour Force Withdrawal, 1980

	Length of completed spell					
	1 month or less	1 to 2 months	2 to 3 months	3 to 6 months	More than 6 months	Average
			(Per cent)			
All	41.4	45.7	47.4	49.4	60.5	44.3
Men	32.9	37.7	39.9	40.8	54.5	36.9
Women	49.8	54.2	56.4	60.3	66.4	52.0

SOURCE Estimates by the authors, based on gross flow data supplied by Statistics Canada.

to notice that the proportion of unemployment spells ending in withdrawal varies with the duration of the spell itself: over 60 per cent of the spells lasting more than six months result in withdrawal, whereas such an outcome occurs for only 41 per cent of the spells lasting less than one month. This, in itself, is a clear indication that spells ending in labour force withdrawal have a longer average duration than spells ending in employment. This phenomenon of the increasing proportion of labour force withdrawals with the lengthening of unemployment spells can be observed for both men and women. Our research shows that the average proportion of unemployment spells ending in withdrawal has been very stable throughout the 1976-80 period.

Now, to understand the impact that withdrawals have on the duration of unemployment, let us compare these results with those obtained when we consider that an unemployed person does not have any other choice but to continue to search for a job until he finds one. For such an "indomitable job searcher," the probability of withdrawing from the labour force then is zero (*un* = 0), *and the probability of finding employment, ue*, is the only measure that applies. With this assumption, the average duration of unemployment is seen to increase dramatically to about four and a half months in most years observed (Table 3-3). The impact is even more pronounced for women. Because they tend to withdraw in relatively larger numbers than men, the "indomitable searchers" among them spend nearly one month longer than men before finding a job, compared with the shorter unemployment duration for women when the possibility of withdrawal is recognized. In view of the significant difference in the average durations of unemployment among all searchers and "indomitable searchers", we need a greater understanding of labour force withdrawal.

The assumption underlying the "indomitable job searcher" concept is obviously an extreme one. However, there is considerable evidence to suggest that all withdrawal spells are not the result of discouragement with job prospects. In the case of teenagers, for example, withdrawals from the labour force may be part of a normal transition back to school. In addition, a large proportion of women may withdraw

Table 3-5

Characteristics of Completed Unemployment Spells, 1976-80

	Proportion of spells:			Proportion of unemployment due to spells:			Proportion of unemployment due to spells ending in employment:		
	Ending within 1 month	Exceeding 3 months	Exceeding 6 months	Ending within 1 month	Exceeding 3 months	Exceeding 6 months	Within 1 month	Within 3 months	Within 6 months
					(Per cent)				
1976									
All	57.15	14.41	3.64	27.76	39.97	15.47	16.26	33.86	45.93
Men	54.03	16.02	4.26	24.85	42.90	17.51	16.85	36.76	51.04
Women	60.20	12.69	2.96	31.02	36.45	12.99	15.10	30.01	39.59
1977									
All	53.25	17.47	5.16	23.47	46.26	20.69	13.61	29.96	42.60
Men	50.39	18.95	5.70	21.22	48.42	22.13	13.94	32.69	47.90
Women	56.50	15.77	4.51	26.31	43.50	18.83	13.04	26.50	36.13
1978									
All	52.41	17.99	5.42	22.69	47.25	21.63	13.12	29.36	42.15
Men	49.05	19.91	6.17	20.05	50.06	23.56	13.38	31.82	47.10
Women	56.26	15.84	4.58	26.05	43.73	19.21	12.77	26.32	36.17
1979									
All	55.72	15.77	4.49	25.77	43.40	18.88	15.04	31.79	44.05
Men	51.95	18.02	5.36	22.45	47.09	21.33	15.18	34.03	48.68
Women	59.55	13.52	3.62	29.61	39.19	16.11	14.66	29.01	38.69
1980									
All	55.28	16.39	4.91	25.01	45.00	20.55	14.86	30.96	42.83
Men	52.32	18.69	6.10	22.00	49.37	24.34	15.00	32.57	46.55
Women	58.63	13.90	3.72	28.77	39.81	16.39	14.48	28.62	38.04

SOURCE Estimates by the authors, based on data from Statistics Canada.

from the labour force for family-related reasons. Such behaviour is acknowledged, and limits the "indomitable job searcher" concept to an illustrative example.

Distribution

Consider next the distribution of completed spells by spell length, as depicted in Table 3-5. From the first column it is clear that a large proportion of unemployment spells are very brief: about 55 per cent of spells terminated within one month in 1980. The figure for other years is generally in excess of 52 per cent. A larger proportion of women than men terminated their unemployment spells within one month. Most unemployed, it would seem on surface, were able to locate a job very quickly. The fact that hardly 6 per cent of spells lasted longer than six months supports this view. This interpretation is, however, subject to the caveat already mentioned – many unemployed terminate their unemployment spell not in jobs but in exits out of the labour force.

There is another caveat that needs to be considered. The middle section of Table 3-5 shows that the 55 per cent of spells that terminated within one month in 1980 account for only 25 per cent of unemployment. In contrast, spells that exceeded three months in duration account for 45 per cent of total unemployment. Indeed the 4.9 per cent of spells that lasted longer than six months account for no less than 20.5 per cent of all unemployment. Based on these figures, it can be seen that about 45 per cent of all those unemployed in 1980 experienced three months of unemployment or more before terminating their spell.[1] The concentration of unemployment in long spells is even more pronounced among men. Long-term unemployment, defined as spells lasting more than six months, accounts for 24 per cent of unemployment, while short spells of one month or less contribute, only 22 per cent. Under the assumption of constant flows, into unemployment, it would appear that close to a quarter of unemployed men are unemployed for six months or more before terminating their spell.

The last three columns of Table 3-5 reveal a different aspect of the same phenomenon. The characterization of unemployment that stresses relatively easy access to jobs is not borne out. Considering total unemployment, for the total population, less than one-third of it is due to spells ending in a job within three months. Clearly the portrayal of unemployment as being a short transition between jobs is not accurate.

Could the observed concentration of unemployment in long spells be simply due to the fact that most of the weight in any probability distribution is to be found in its tail? As can be expected, even if all unemployed persons at all points in their spells had the same probability of exiting from unemployment, a disporportionate share of unemployment would be due to those individuals who were unlucky to suffer long spells. A simple Markov model with constant escape probability describes such a situation: unemployment in this model is treated like a lottery, – that is, the chances of leaving are the same whatever the length of time spent in unemployment. The distribution of spell lengths generated by this model can be compared with the observed data if we set the value of the constant escape rate at the level of the average escape probability actually observed in the data. The resulting proportion of unemployment spells exceeding six months and their contribution to total unemployment are compared with observed data using hazard function estimates in Table 3-6.

In each of the cases examined, the observed concentration in long-term unemployment is significantly greater than that attributed by the Markov model. Hence, this model is rejected. The exit

Table 3-6

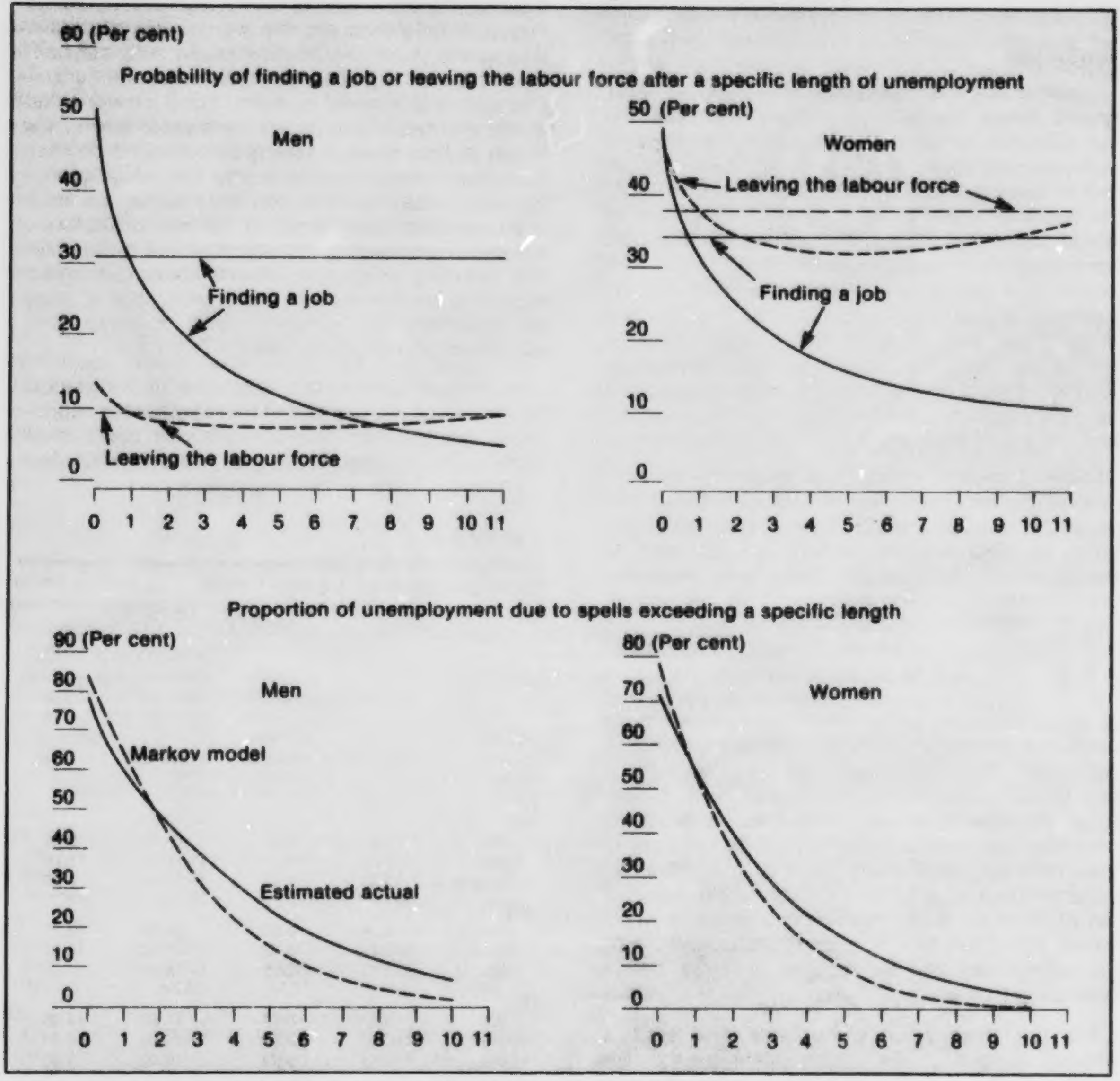
Comparison of Long-Term Unemployment Measures, 1976-80

	Proportion of spells exceeding 6 months		Proportion of unemployment due to spells exceeding 6 months	
	Observed	Markov model	Observed	Markov model
		(Per cent)		
1976				
All	3.64	2.56	15.47	9.56
Men	4.26	3.27	17.51	11.78
Women	2.96	1.85	12.99	7.26
1977				
All	5.16	3.60	20.69	12.77
Men	5.70	4.19	22.13	14.49
Women	4.51	2.95	18.83	10.81
1978				
All	5.62	4.04	21.63	14.08
Men	6.17	4.83	23.56	16.31
Women	4.58	3.24	19.21	11.68
1979				
All	4.49	3.06	18.88	11.14
Men	5.36	3.90	21.33	13.69
Women	3.62	2.27	16.11	8.64
1980				
All	4.91	3.43	20.55	12.28
Men	6.10	4.58	24.34	15.60
Women	3.72	2.37	16.39	8.96

SOURCE Estimates by the authors, based on gross flow data supplied by Statistics Canada.

Chart 3-1

Unemployment Exit Probabilities and Unemployment Distribution, 1980



SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

probabilities are not constant, but decline as the duration of unemployment lengthens.[2] These features are illustrated in Chart 3-1. The top panels contrast the pattern of actual probabilities of exit from unemployment with the constant exit probability implied by the simple Markov model for men and women. The distribution of months of unemployment actually observed is compared with the distribution generated by the Markov model for men and women in the lower panels. The Markov model attributes 16 and 9 per cent of unemployment to spells exceeding six months, in comparison with 24 and 16 per cent *actually* observed for these spells in 1980 for men and women respectively.

An Analysis of the Determinants of the Escape Rate

The preceding section provides evidence that escape rates decline as the duration of unemployment increases. This finding is open to two interpretations. First, it is possible that escape rates are constant for each individual, but vary among individuals because of heterogeneity. The unskilled, for example, may have lower escape rates than the skilled. Aggregation across skill groups will then generate a declining escape rate through time in the aggregate, because the skilled group exit from unemployment before the unskilled. Second, the escape rates may actually be state dependent. This may happen as a result of both demand and supply side influences. Several factors may be identified on the supply side. Prolonged unemployment can lead to physical and mental deterioration and illness; attitudes to work may change to the point of indifference towards work; and discouragement due to lack of success in finding a job may lead to reduced intensity of job search. On the demand side, employers may view prolonged unemployment as an indication that the individual's wage demands are too high or that other employers do not rate him or her highly. Thus job offers may decrease as the length of unemployment increases.[3] If escape rate decline is due to heterogeneity of workers or if their state dependency arises from supply side factors alone, then one could argue that individual attributes determine the incidence of long-term unemployment. We now examine this hypothesis.

To separate the impact of heterogeneity from the influence of state dependence, we develop a dichotomous variable denoting the probability of finding a job, and apply an approach somewhat similar to that developed by McGregor (1978). The data used for this purpose come from the Labour Force Tracking Survey.[4] A sample was created for all individuals unemployed as of the end of March 1978. Each case was then followed over an eight-week period, April to May 1978, to examine whether the individual obtained employment during this period. A dichotomous variable was then created on this basis, which served as the dependent variable in a regression model taking on a value of one if the unemployed individual found a job and zero otherwise. The explanatory variables in the regression were chosen so as to identify the contribution of heterogeneity and state dependence to the probability of re-employment.

A word should be said about the choice of the estimation procedure employed. Several problems with the ordinary least squares (*OLS*) technique render it inappropriate for the estimation problem at hand. First, the OLS-predicted values may lie outside the zero to one range, which means that the estimated coefficients cannot be treated as probabilities. Second, when the dependent variable is dichotomous, there is a heteroscedasticity problem. These problems can be avoided by using a more appropriate estimation technique such as logit. This model transforms the original variables of zero and one to the $(-\infty$ to $+\infty)$ range. The probability of re-employment, r, is then given by:

$$r = 1/(1 + e^{-X'\beta}) \qquad (3.8)$$

where X is a vector of explanatory variables. Equation 3.8 can be written as:

$$\log\left(\frac{r}{1-r}\right) = X'\beta \qquad (3.9)$$

which so transforms the dependent variable that it can be interpreted as the log of the likelihood of being re-employed within the given time period. This takes care of the first problem associated with *OLS* mentioned above. For the heteroscedasticity problem, we apply the generalized least squares estimation technique. For this purpose, each observation of all the variables in the regression is weighted by $\sqrt{r(1-r)}$.

Table 3-7 presents logit coefficients for the estimated employment probabilities. The explanatory variables fall into several sets of variables. The demographic, human capital, financial, and motivational variables are used to allow for the heterogeneity of workers. A set of variables representing the duration of unemployment is used to test for state dependency. Two variables – the aggregate unemployment rate and the province of residence – are used to control for economic conditions. Most of the variables included in the regression attain high levels of statistical significance, generally at the 1 per cent level. This means that heterogeneity as well as state dependence are explanations of the decline in escape rates.

Consider some of the proxies for the heterogeneity of workers. Among the variables representing demographic factors, sex of the worker is not an important factor affecting employment probability, when other factors are held constant. Age is, as expected, highly significant. Compared with the reference group aged 25 to 44 years, persons aged 45 to 64 years have a lower probability of being rehired. All other age groups are at a relative advantage. Being married increases the probability relative to any other family status (because of more financial pressures to cover family needs).

The sets of variables included in the human capital category, such as education, training, and weeks of employment with the previous employer, are each highly significant, the first, surprisingly, with a negative association; this may be an expression of greater choosiness on the part of more educated persons, behaviour that leads them to accept longer unemployment durations. It should be noted also that previous wages, discussed below, are being held constant. Most of the occupational as well as industry dummies are also statistically significant. Rather than interpret each coefficient in relation to *a priori* expectations, we have treated them primarily as control variables.

Table 3-7

Logit Coefficients for the Probability of Being Hired in April–May 1978

	Logit coefficient
Personal characteristics:	
Age	
15 to 19 years	4.552*
20 to 24 years	1.662*
25 to 44 years	---†
45 to 64 years	-0.766*
65 years and over	9.126*
Sex	
Men	---
Women	0.401
Family status	
Married	2.212*
Other	---
Human capital	
Education (years)	-0.069*
Training	0.122*
No training	---
Experience (weeks)	0.001*
Occupation	
Managerial	1.570**
Clerical	-0.364
Sales	2.416*
Primary	4.922*
Processing	0.526
Machining	0.646
Fabricating	-3.080*
Construction	2.986*
Transportation	-0.957
Other	---
Industry	
Manufacturing	1.801*
Construction	0.466
Transportation	-1.825*
Trade and finance	2.080*
Public administration	---
Motivation	
Wage expectation (dollars)	-1.096*
Quit	0.533
Layoff	---
NLF spell	2.146*
No NLF spell	---
Financial status	
UIB	1.702*
No-UIB	---
Previous wage (dollars)	0.321**
Dependents	-0.549*
Savings used	-0.172
Savings not used	---
Economic condition	
URATE ≤ 5.0	3.844**
URATE >5.0	---
Region	
Newfoundland	-0.009
New Brunswick	2.047*
Quebec	2.410*
Ontario	---
Manitoba	4.081*
British Columbia	0.054
Unemployment duration	
1 to 2 months	-3.519*
3 to 4 months	---
5 to 6 months	-8.432*
7 to 12 months	-12.968*
13 to 24 months	-16.159*
25 months or more	-16.952*
Constant	-0.671
$\bar{R}^2$	0.1665

*Significant at the 1 per cent level.

**Significant at the 5 per cent level.

†Indicates the omitted reference category. Coefficients are interpreted as the effect of being in the actual category as opposed to the reference category.

SOURCE Based on LFTS for the year 1978. April-May is used as the reference point.

Included among the set controlling for motivational aspects of jobseeking are variables representing wage expectations, whether the individual quit the previous job, and whether there was a period of not searching during the unemployment spell. The wage expectation variable was developed by calculating the relative wage change over the total period of unemployment. The higher the wage expectations, other things being constant, the lower would be the employment probability during a given period. This expectation is borne out. Regarding quitting, one may hypothesize that, being a jobseeker's own decision rather than one imposed upon the employee, it may have a positive impact on employment probabilities. Again this is borne out, but only at the 10 per cent level of significance. A spell out of the labour force during a period of unemployment has the impact of reducing the observed duration of unemployment, other things being equal. In some cases, jobs start at some time in the future and job search ceases. Thus, a positive coefficient for the spell out of the labour force can be expected, and is observed.

Among the set of variables controlling for financial conditions of the jobseekers are unemployment insurance eligibility, previous wages, whether or not savings were used during the unemployment spell, and the number of dependents. It was hypothesized that receipt of unemployment insurance benefits should, by reducing the cost of search, increase reservation wages and lower the probability of reemployment. However, as we have controlled for wage expectations, this variable is primarily measuring unemployment insurance eligibility requirements. Since these favour workers with stable attachments to the labour force, the *UIB* variable should have a positive coefficient, which is consistent with our finding in Table 3-7. Higher previous wages, holding for all other factors, may be an indicator of higher productivity and should exhibit a positive coefficient, as is observed.

The *URATE* variable representing provincial economic conditions has the expected sign. Economic conditions denoted by a provincial unemployment rate less than or equal to 5 per cent are quite favourable for the period studied and, predictably, are associated with higher employment probabilities. Three of the sets of five dummy variables representing provinces are also highly significant. These coefficients should be interpreted, as in all other cases, with reference to the omitted category, which in this case is represented by Ontario. However, as our data are based on communities within each province, it is difficult to interpret these coefficients without appropriate knowledge of individual local labour market conditions.

Finally, we consider the duration of unemployment. Measured against the reference category of unemployment last three to four months, the probability of employment for each of the other duration categories is lower. The fact that persons who have left employment only recently appear to be at a disadvantage is somewhat surprising. However, several factors may be responsible for this. First, search is not at its most intensive in the initial weeks of unemployment.[5] Second, some of the individuals who are on recall may not search at all, at least initially. Third, individuals may be more choosy initially and may reject job offers. All these factors lower one's probability becoming employed shortly after being unemployed. This finding is supported by other researchers as well.[6]

The most important result, from our perspective, is the negative coefficients for duration categories longer than the reference category. Relative to the reference group, there is a significant deterioration in employment probability as the duration of unemployment lengthens. Beyond the four-month period, the longer the individual is unemployed the worse the chances of escaping unemployment, even when the heterogeneity of workers is largely accounted for. This finding is a clear support for the state dependency of escape rates.

To conclude this section, part of the decline in the aggregate escape rate is because of the heterogeneity of workers. However, even when allowance is made for differences in various characteristics among individuals, there is evidence that individual escape rates themselves decrease with the length of the unemployment spell beyond an initial period. This decrease in escape rate sets in well before the period of long-term unemployment, customarily defined as exceeding six months. Thus, our findings suggest that the causes of long-term unemployment are both market-determined as well as being due to individual attributes.

Conclusion

This chapter brings together important pieces of information about the duration of unemployment, and goes much beyond what was presented in Chapter 2. It sets out the problems that plague an analysis done simply in terms of average durations of unemployment, and argues that it is very important to look at the distribution of unemployment spells by duration and at the distribution of total unemployment by duration. From this analysis comes out the striking importance of the concentration of unemployment: a fairly limited proportion of spells account for a disproportionately large proportion of total unemployment.

Theoretically, this concentration phenomenon could well be an effect of the simple existence of a probability distribution. We prove that in fact it is not. Rather, it is a result of the decline in exit probability as the duration of the spell lengthens. This result itself may be explained by two different phenomena:

- the workers are heterogeneous and then, in aggregate, this factor can lead to a decline in exit transition rates; or

- the exit probability declines for each individual with the extension of the unemployment spell. Our analysis permits us to separate out the two types of explanation, and concludes that both are at work simultaneously.

4 Unemployment and Non-Participation in the Labour Force

The large role played by non-participation in the labour force in determining employment and unemployment in the economy has been alluded to in Chapters 2 and 3. It is widely recognized that labour force withdrawals cause problems in measuring unemployment. The extent of this problem is, however, subject to considerable dispute. Some argue that labour force withdrawals are largely motivated by non-economic and personal reasons. The fact that official unemployment statistics ignore all withdrawals from unemployment, represents this presumption. Others, such as Clark and Summers (1979), claim that most labour force withdrawals are really part of an extended spell of unemployment. It is to this controversy that we now turn. This chapter attempts to show that

- a substantial proportion of all withdrawal spells represents discouragement from job prospects; and that
- if these spells are taken into account, the duration of unemployment spells is lengthened significantly.

We begin with a brief presentation of the issue of discouragement. Next, we present alternative measures of discouragement as the phenomenon is dealt with in Statistics Canada surveys. From time-series data, we attempt to identify the cyclic nature of the discouragement phenomenon. Then, we estimate the number of discouraged workers from the gross flow data. We conclude that the measured unemployment rate would have been increased by about 1.5 percentage points in 1980, if discouraged workers had been added to the official estimates of the number unemployed. The average duration of unemployment would have been raised from two months and a week to two months and three weeks.

The Issue of Discouragement

The main issue about labour force withdrawals relates to the arbitrariness of the definition of unemployment. Official statistics in Canada define unemployed persons

> who during the reference week: (a) were without work, had actively looked for work in the past four weeks (ending with reference week), and were available for work; (b) had not actively looked for work in the past four weeks but had been on layoff for twenty-six weeks or less and were available for work; (c) had not actively looked for work in the past four weeks but had a new job to start in four weeks or less from reference week and were available for work.[1]

It is clear that many members of the working age population may not be officially counted among the unemployed if they are discouraged workers – that is, persons who want a job and are available for work but are not looking because they believe they cannot find one. The borderline between unemployment and non-participation in the labour force in such cases is very fuzzy. The main questions are whether the discouraged workers should be considered as unemployed and, if so, how extensive is this phenomenon. This latter issue involves controversies about appropriate ways of measuring the discouragement effect. It is a sensitive question since the inclusion of some non-participants in the labour force among the unemployed would change the estimates not only of the number unemployed but also of the average duration of unemployment. This is because some transitions from unemployment to not in the labour force might well not be considered as such and be treated as an extended spell of unemployment. The resulting distribution of unemployment spells and also, the burden of unemployment could differ markedly from the reported statistics.

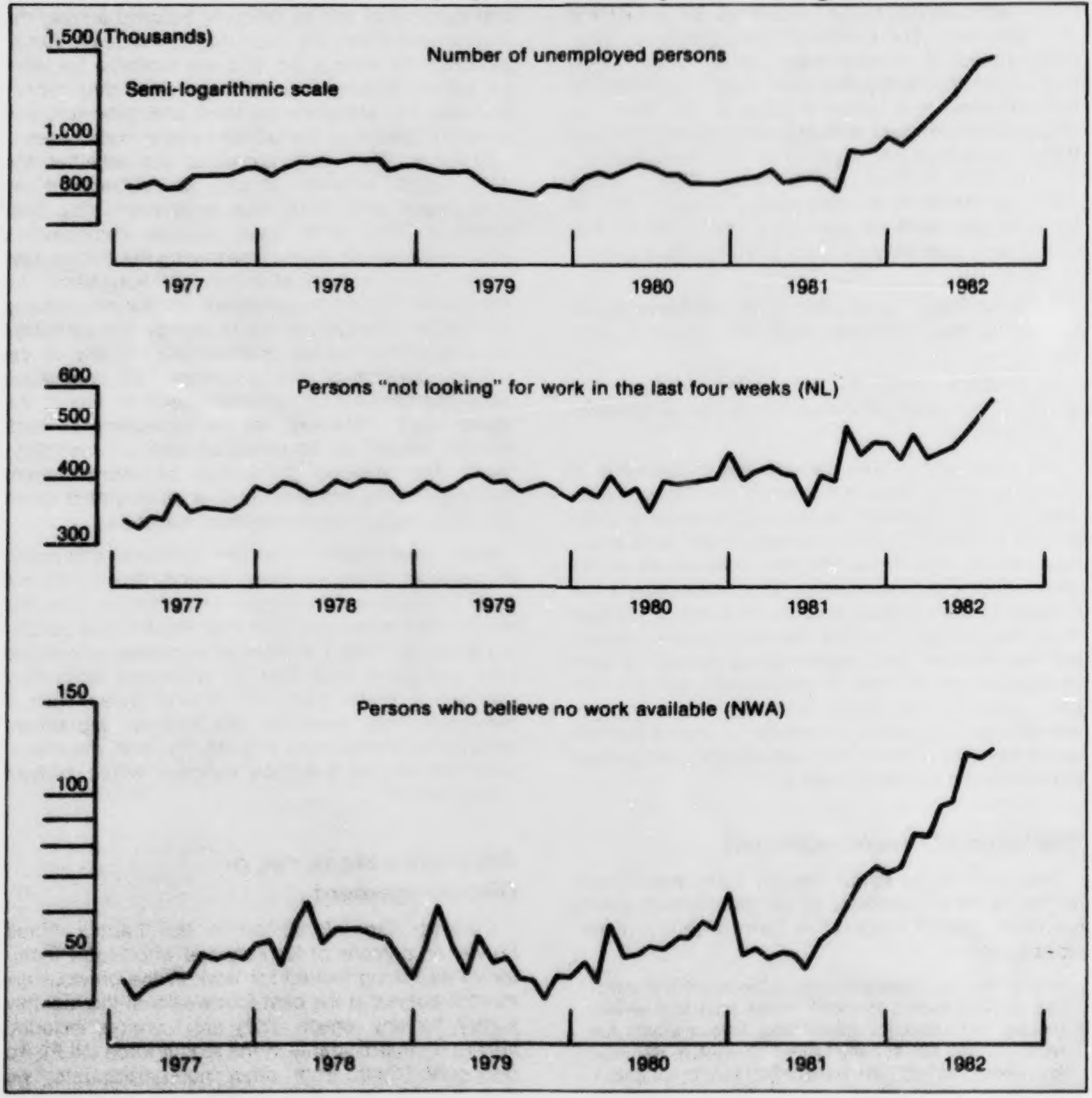
Even more important are the economic and policy implications of the problem. Indeed, those who are likely to become discouraged and withdraw from the labour force when they view their likelihood of obtaining a job as limited in adverse economic conditions may well come back into the workforce when they perceive a better business climate. Given such a behaviour, not counting discouraged jobseekers among the unemployed and relying upon the unemployment rate as a cyclical indicator would mislead policy makers.

Alternative Measures of Discouragement

Consider the information in the Labour Force Survey on persons of working age who report themselves as having looked for work in the previous six months but not in the past four weeks of the monthly survey, for any reason. They are therefore included among non-participants in the labour force (NLF). To distinguish them from other non-participants, we describe this time-series as the "not looking" (NL) data. During the period February 1977 to August 1982, their number averaged around 403,000 each month, on a seasonally adjusted basis. Clearly, this is a significant number, compared with the number unemployed, which averaged around 915,000 each month; the question of the number of truly discouraged workers therefore assumes considerable policy significance.

Chart 4-1

Unemployment and Hidden Unemployment, February 1977 to August 1982*



*Seasonally adjusted.

Source Statistics Canada, The Labour Force, cat. no. 71-001.

A preliminary look at this question is provided in Chart 4-1, which compares the NL time-series with the number of unemployed in Canada. It reveals a broad similarity of movements in the two time-series. Persons reporting "not looking" non-participation, as defined above, are more numerous when the number of unemployed increases. Thus, the NL series appears to be cyclically sensitive. Adverse labour market conditions apparently drive many unemployed out of the labour force and lower the count of the unemployed.

But are all the NL workers truly discouraged workers in the sense discussed above? One clue to this question is provided by the reasons for non-participation advanced by NL persons, which are categorized by Statistics Canada as:

- personal reasons or illness;
- at school;
- no longer interested or found job;
- awaiting recall or reply;
- believes no work available; and
- other reasons.

Some of these reasons, clearly, do not fit the definition of discouraged workers. A different approach, therefore, is to label those persons who cite non-availability of jobs in their reason for not participating as the truly discouraged workers. These "no work available" (NWA) cases, a subgroup of the NL series, are compared with the number of unemployed in Chart 4-1. In relative terms, the fluctuations in the NWA series are much greater than those in the NL series, and are also more closely associated with fluctuations in the number of unemployed.

In Canada, our statistical agency does not use a specific definition of discouraged workers. However, in addition to the monthly NL and NWA series, Statistics Canada has also conducted since 1978 an annual survey of non-participants as a supplement to the March Labour Force Survey. These annual surveys are addressed to persons who are neither employed nor actively seeking work as of the March reference period and who report that they want a job and are available for work at this time. Whether or not search was conducted in the preceding six months is not invoked. In March 1980, some 348,000 persons were counted under this definition. Among these persons, according to Statistics Canada, some 65 per cent explained their situation by "reasons which conceptually, at least, relate to the functioning of, or conditions in, the labour market."[2] These reasons include "waiting for recall," "waiting for replies," and "believe no work available." The defining criterion for the March Supplementary Survey, being different from the one employed in the monthly surveys, therefore results in different estimates of discouraged workers (Table 4-1). For example, in March 1980, some 64,000 persons were counted as believing "no work available" in the monthly survey. The March Supplementary Survey produced a figure of 111,000. It should be noted that the data presented in Chart 4-1 refer only to the "believe no work available" reason and are drawn from the monthly survey.

Table 4-1

Comparison of Discouraged Worker "Official" Estimates, 1980

	Labour force survey, March 1980*	Supplementary survey, March 1980*
Unemployed persons	969,000	969,000
Persons not in the labour force with a desire to work	490,000	348,000
Have labour-market-related reason for not looking	150,000	225,000
"Believe no work available"	64,000	111,000

*Definitions differ in the two surveys; see text.

SOURCE Statistics Canada, The Labour Force, cat. no. 71-001, March 1980 and January 1981.

In the United States, the monthly Current Population Survey (CPS) defines discouraged workers as those non-participants who are not seeking work for one or more of the following five reasons:

- believes that no work is available;
- reports that he or she was unable to find any work;
- believes that he or she lacks the necessary schooling, training, skills, or experience;
- claims that employers say the subject is too young or too old; and
- cites some other personal handicap in finding a job.

The U.S. Bureau of Labor Statistics classifies persons in the top two groups as being discouraged for "job market reasons," and persons in the remaining categories as being discouraged for "personal reasons."

The distinction between personal and market-related reasons is important. In his study of U.S. data, Flaim (1973) found a strong positive association between the overall unemployment rate and the number of persons offering job market reasons for discouragement and a weaker negative association between unemployment and the number discouraged for personal reasons. These findings were subsequently confirmed by Ondeck (1978), who used a longer time-series. In a recent study, Finegan (1981) reports marked cyclical swings for persons discouraged for job market reasons, but not for the number discouraged for personal reasons. He also found that the incidence of discouragement and its sensitivity to labour market conditions varies widely across demographic groups.

The foregoing is intended to provide some idea of the quantitative significance of the discouragement phenomenon, however measured. Worker discouragement represents social costs of unemployment that are not reflected in the officially reported unemployment data. Some indication of the extent of discouragement effect, therefore, is valuable for understanding the burden imposed by joblessness. Worker discouragement, however, has several dimensions. Since it is job-related, the NWA series should exhibit cyclical sensitivity. Job availability may also have seasonal and trend dimensions. In the next section, we attempt to measure the separate influence of these factors.

Cyclical, Seasonal, and Trend Factors in Worker Discouragement

Methodology

As mentioned above, since February 1977, Statistics Canada publishes each month the number of persons who have looked for work sometime in the past six months but not in the past four weeks of the LFS. This time-series is labeled as the NL series. A subset of this group comprises the persons who report "no work available" as their reason for not looking – the NWA group. Both of these data sets are used as the dependent variables in the equations described below.

In assessing the importance of cyclical determinants of discouragement, it is crucial to separate this influence from those of other factors. Changes in demand for labour arise not only from cyclical forces but also for seasonal factors. We therefore introduce a set of monthly dummy variables, *MD*, with the month of September as the variable omitted for reference. It has also been argued by Finegan (1981) that some discouragement may arise from structural factors, so inclusion of a time trend is appropriate. Again, we incorporate a set of yearly dummy variables, *YD*, for this purpose, with the year 1978 omitted for reference. Given a constant demand for labour, the growth of supply during the 1977-82 period suggests that the number of discouraged workers would also rise and exhibit an upward trend.

An important consideration relates to the choice of an index for labour market conditions. The overall unemployment rate or the unemployment rate for prime-age males has the obvious shortcoming that is being debated – namely, that it excludes discouraged workers. An exogenous shift of persons from unemployed to discouraged categories (or vice versa) would produce a negative association between the measured unemployment rate and the numbers of discouraged workers, even though the cyclical association between the two variables would be positive. Errors in the classification of these two categories would also produce a specious negative association. Finally, some changes in unemployment originate on the supply side of the labour market. The unemployment rate may not, therefore, reflect changes in job availability (demand side factors) alone, but also compound it with supply elements.

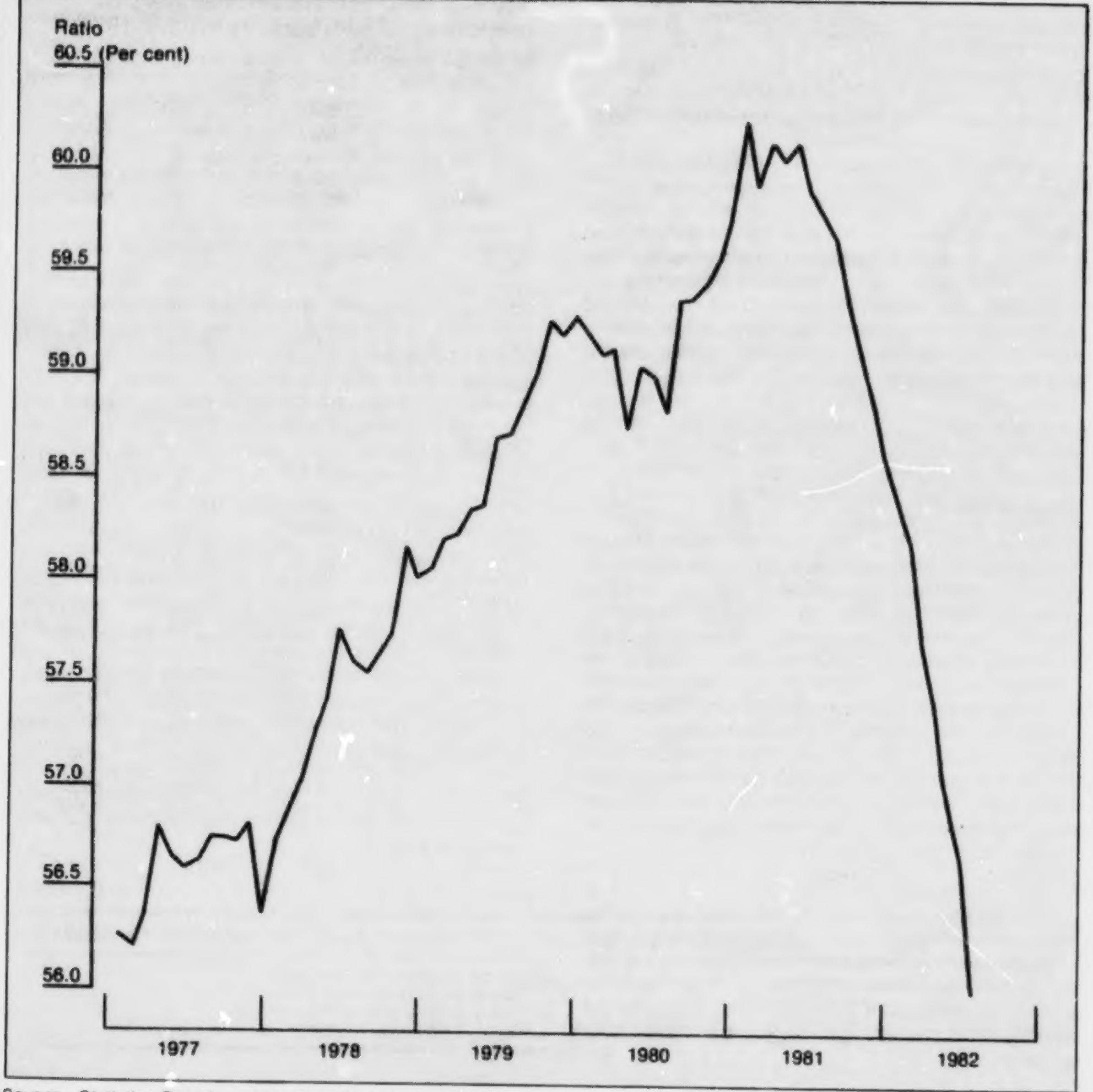
One obvious indicator of aggregate demand conditions – the output produced by the economy – is unfortunately subject to wide month-to-month fluctuations due to inventory adjustments. In view of these considerations, our primary reliance is placed on the employment-population ratio, *EPR*, which is the number of employed divided by the working-age population, also called the *employment ratio*. The denominator of this ratio may be treated as largely exogenous to fluctuations in business conditions. So, the numerator – the number of employed persons in the economy – bears the full burden of economic changes. The behaviour of seasonally adjusted *EPR* is depicted in Chart 4-2. There may, however, be some lags in the response of employment to changes in aggregate demand. During the downswing, there is the well-known phenomenon of labour hoarding. On the upswing, employment may not expand as much, since the average productivity of employed persons may be rising. Also, jobseekers may learn of improved demand conditions only over a period of time.

To take account of these lags, *EPR* is introduced with an Almon lag specification. According to our calculations, the best results are obtained with a lag extended to six months, including the contemporaneous month and a polynomial of the second order. This means that the information process about labour market conditions may take up to six months to have its full impact on the discouraged workers' behaviour. The resulting equation may be written as:

$$DW = \alpha + \sum_{i=1}^{11} \beta_i MD_i + \sum_{j=1}^{5} \gamma_j YD_j + \sum_{k=0}^{5} \partial_k EPR_{t-k} + \epsilon \qquad (4.1)$$

Chart 4-2

Employment-Population Ratio, February 1977 to August 1982



SOURCE Statistics Canada; seasonally adjusted by the authors.

where

DW = the number of discouraged workers defined alternatively by three data series (NWA, NL, and NWAR).

α, β, γ, and ∂ = regression coefficients to be estimated.

MD_i = a monthly dummy variable with September as the reference month;
YD_j = a yearly dummy variable with 1978 as the reference year,
EPR = the employment-population ratio seasonally adjusted for the entire working-age population,
$\Sigma \partial_k$ = sum of the Almon lag coefficients, and
ϵ = random term.

The key variable of interest in the present context is *EPR*. The sign of its coefficient should be negative. An improvement in labour demand, signified by a rise in *EPR*, should reduce the number of discouraged workers, other things being constant, and a deterioration of job prospects (a diminution in *EPR*), should have the opposite effect.

Empirical Results

Table 4-2 presents empirical estimates for regression coefficients in equation 4.1, with three alternative exogenous variables to represent the discouraged worker phenomenon. With NWA as the dependent variable, the correlation coefficient is very high. Seasonality appears to be an important feature of the phenomenon. Compared with the number in September, the number of discouraged workers in December is about 32,000 persons higher. Surprisingly at first glance, July and August also have higher than average numbers of discouraged jobseekers. As will be discussed in Chapter 7, this effect is almost totally due to the large numbers of young people available for work during the summer only.

There is also a strong upward trend during the years examined; the number of discouraged workers is "structurally" growing over time. It is our view that this is related to the inability of the Canadian economy to generate a sufficient number of jobs for those available and willing to participate in the labour market.

The most important variable from the present perspective is the employment-population ratio. The sum of Almon lag coefficients indicates a strong negative impact of economic conditions on the number of discouraged workers. A one percentage point increase in *EPR* would reduce the number of discouraged workers by some 18,000 in the NWA series. This is very large relative to the average value of 59,000 discouraged workers in the NWA series during this period. The elasticity estimate at the mean shows that an increase of 1 per cent in *EPR* reduces the number of discouraged workers by 31.1 per cent.

Table 4-2

Empirical Estimates of Seasonal, Trend, and Cyclical Effects on Numbers of Discouraged Workers, February 1977 to August 1982†

	Dependent variable		
	NWA series	NL series	NWAR series
Constant	1,088,046*	2,470,413*	45.696*
January	27,833*	-132,011*	2.728*
February	16,498*	-137,920*	1.537*
March	16,863*	-8,594	1.267*
April	10,154*	43,791*	0.805*
May	-615	-26,116**	0.026
June	1,812	-76,627*	0.211
July	19,529*	-199,575*	1.987*
August	22,648*	-164,788*	2.607*
September	—	—	—
October	5,123	-57,425*	0.620
November	15,669*	-98,390*	1.601*
December	31,937*	-116,310*	3.246*
1977	-18,939*	-59,472*	-0.956*
1978	—	—	—
1979	18,143*	47,010*	0.849*
1980	35,569*	73,149*	1.763*
1981	51,481*	130,236*	2.418*
1982	65,991*	130,764*	3.228*
Lagged *EPR*			
∂_0	-5,069*	-9,875	-0.137
∂_1	-4,309*	-8,291*	-0.149*
∂_2	-3,515*	-6,682*	-0.147*
∂_3	-2,688*	-5,048	-0.131
∂_4	-1,826**	-3,390	-0.101
∂_5	-930	-1,707	-0.057
∂_6	0	0	0
Total ($\Sigma\partial_k$)	-18,337*	-34,993*	-0.722*
R^2	0.961	0.955	0.883
$\bar{R}^2$	0.945	0.936	0.834
DW	1.83	1.92	1.82
Average value for period	58,9	403,0	6.262
Elasticity at the mean of EPR (per cent)	-31.132	-8.683	-11.530

*Significant at the 5 per cent level.
**Significant at the 10 per cent level.
†See text for explanation of the variables.
SOURCE Estimates by the authors, based on equation 4.1.

An improvement in *EPR* has a significant impact in the same month it occurs. However, its impact is not limited to the contemporaneous month, but reduces the number of discouraged workers for several months following. The impact is statistically significant for at least three months, although the impact weakens gradually.

The foregoing results refer to the equation when the dependent variable is defined according to the narrow definition of discouragement. Is the group representing all persons who want a job but did not search during the reference week (NL series) also cyclically sensitive? Is it less or more sensitive than the NWA group? Results based on estimation of equation 4.1 with the NL series as the dependent variable are reported in the second column of Table 4-2.

The correlation coefficient is highly significant and only marginally lower than for the NWA group. But there is a marked difference in the seasonal pattern of the NL series. Compared with September, April is the only month with a higher number of NL workers. In all other months, the seasonal coefficient is negative and highly significant. The trend variable is statistically significant with the appropriate significant coefficient.

The Almon coefficient for *EPR* is also highly significant. In other words, the number of persons who report not searching in the reference week, having searched sometime in the previous six months, appears to be affected by the demand conditions in the labour market, when other conditions are held constant. The statistically significant effect, however, occurs after one month, and the significant impact lasts only two months. Thereafter, the coefficients become statistically unreliable. A one percentage point increase in *EPR* means that the number of NL persons is reduced by 35,000. A comparison with the first column shows that more than half of this number can be attributed to the NWA category. Because the NWA category represents only one-seventh of the NL category, the elasticity of NL at the mean of *EPR* is much lower than is the case with NWA (–8.7 per cent compared with –31.1 per cent). Nevertheless, the results suggest that the number of workers discouraged for reasons related to economic conditions is higher than that estimated by the narrow definition of the phenomenon represented by the NWA group.

Finally, the data presented in the third column of Table 4-2 reveal that the number of discouraged workers is more sensitive to aggregate labour market conditions than is the number of unemployed. These results are derived by estimating equation 4.1 where the dependent variable is given by NWAR, the ratio of NWA to all unemployed. The negative coefficient of Almon lag variable shows that an increase in the employment-population ratio reduces the number of discouraged workers relatively more than it does the number of unemployed. Part of this may simply happen because, as the demand conditions improve and discouraged workers diminish in number, they may re-enter the labour force without landing a job immediately and therefore swell the ranks of the unemployed. Also worth noting is the very significant upward trend manifested by the coefficient of the yearly dummies. This result reinforces the case made earlier about the fundamental lack of jobs in the Canadian economy to accommodate the fast-growing, willing-to-work population.

How important is the cyclical factor in relation to other determinants of discouragement? As estimated from results presented in Table 4-2, the number of discouraged workers rose from 62,532 in August 1981 to 134,584 in August 1982, as shown in Table 4-3. About 80 per cent of the total change is attributable to cyclical factors, and the remaining 20 per

Table 4-3

Increase in Number of Discouraged Workers, August 1981 to August 1982*

	Number of discouraged workers		Difference	
	August 1981	August 1982	Number	Distribution
	(Thousands)			(Per cent)
Constant	1,088,046	1,088,046		
Seasonal factor	22,648	22,648		
Trend factor	51,481	65,991	14,510	20.1
Cyclical factor†	-1,099,643	-1,042,101	57,542	79.9
Total	62,532	134,584	72,052	100.0

*NWA series is the dependent variable (see Table 4-2).

†The employment-population ratio had a value of 59.8 per cent in August 1981 and 56.0 per cent in August 1982.

SOURCE Table 4-2.

cent is due to the trend variable. The seasonal element, which is quite significant as shown by its coefficients, is eliminated in this comparison since we compare the same month (August) in the two years.

In summary, this section leaves us with two main conclusions. First, the central hypothesis of a discouraged worker relationship with aggregate demand for labour in the economy is borne out. Second, the number of discouraged workers appears to be more than is measured by the narrow definition of NWA. In the section that follows, we utilize gross flow data to shed light on the question of measuring the number of discouraged workers.

Measurement of Discouragement: Gross Flows Analysis

To begin with, if labour force withdrawal is primarily for personal reasons rather than for conditions related to the labour market, one would expect that the employed and unemployed would be equally likely to drop out of the labour force.[3] As the data in Table 2-3 show, for the year 1980, the rate of flow out of unemployment (un = 19.03 per cent) is seven times as large as the dropout rate from employment (en = 2.57 *per cent). Thus, as a first approximation, the larger value for* un appears to be closely related to the state of unemployment itself.

If all unemployment spells ended in employment and none in labour force withdrawal, the resulting unemployment spell would be much longer. As described in Chapter 3, we simulate these conditions by assuming that $un = 0$ and apply the observed ue value to withdrawal spells. Based on these assumptions, the bottom three rows of Table 3-3 present estimates for the duration of unemployment for those who do not stop searching for a job until they find one – "the indomitable jobseekers." The average duration increases sharply to 4.5 months, which is double that of the hazard function estimates for completed spells.

The "indomitable job searcher" hypothesis is clearly an extreme one. Data in Table 4-4 suggest that only a subset of all unemployment spells ending in withdrawal could represent discouraged worker behaviour. Approximately half of all withdrawal spells occur within the first month of unemployment. A significantly larger proportion applies for women than for men. Clearly, any discouragement due to poor job prospects is unlikely to set in so early in the unemployment spell. Recall that data in Table 3-4 reveal that the proportion of unemployment spells accounted for by the withdrawal spells increases with the time spent in unemployment. It would seem reasonable to allow for a longer search duration for discouragement to manifest.

Table 4-4

Distribution of Unemployment Spells Ending in Labour Force Withdrawal, 1980

	Length of completed spell				
	1 month or less	1 to 3 months	3 to 5 months	more than 5 months	Total
	(Per cent)				
All	50.7	29.5	10.5	9.2	100.0
Men	45.7	30.5	11.9	11.8	100.0
Women	55.3	28.6	9.2	6.9	100.0

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

The question now arises as to what proportion of withdrawal spells could be regarded as a manifestation of discouragement. Let us assume that the discouragement effect could only take hold after an individual has engaged in job search for at least as long as the average person takes to locate a job. The average duration of unemployment for "indomitable job searchers" (about 4.5 months) could provide a useful guide, because this concept relates to successful jobfinders only. To compensate for the somewhat arbitrary nature of this criterion, we develop a range of estimates by considering those withdrawal spells that occur, alternatively, after three and five months as representing discouragement. Our work suggests that up to 20 per cent of all unemployment spells ending in withdrawal in 1980 represent discouragement after three months; the corresponding figure for withdrawals after five months of search is 9 per cent (Table 4-4).

This approach to the measurement of the discouragement effect is quite nontraditional but, we believe, is based on realistic assumptions. First, we treat as discouraged workers persons who withdraw from the labour force after a period of unemployment – they form a subgroup of the flow from unemployment to out of the labour force. Second, the discouragement is not likely to occur before a certain "reasonable" duration of search for a job. Third, we think that the discouragement behaviour is not homogeneous across demographic groups or across regions. Some workers may be discouraged after three months of unfruitful search while others could search longer before any discouragement occurs. For example, the financial constraints faced by women, young people, and men may differ significantly. It is for this reason that we choose a range of three to five months. Using these assumptions, we estimate the range of discouraged workers to have been between 106,000 and 225,000 persons a month in 1980, on average (Table 4-5).

Table 4-5

Discouraged Jobseekers and Their Impact on the Unemployment Rate and on the Average Unemployment Duration, 1980*

	All ages
	(Thousands)
Number of discouraged jobseekers:	
Men	57 - 112
Women	48 - 113
Both sexes	106 - 225
	(Percentage points)
Addition to the unemployment rate:	
Men	0.8 - 1.6
Women	1.0 - 2.4
Both sexes	0.9 - 1.9
	(Months)
Addition to the average duration of spells:	
Men	0.3 - 0.6
Women	0.3 - 0.7
Both sexes	0.3 - 0.6

*In each pair of figures, the first represents the stock of those persons who, at any point in 1980, were no longer in the labour force, having left it after five months or more of job search; the second figure applies to those who left the labour force after three months or more of search. The estimates for men and women may not add up to the total for both sexes because each estimate is calculated independently and is rounded.

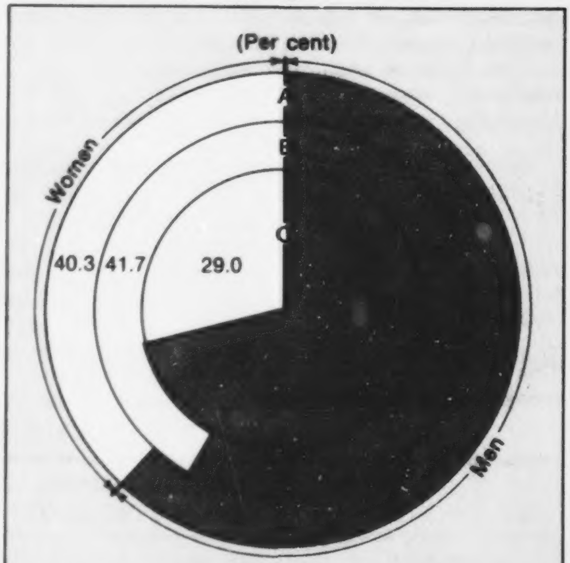
SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

If these discouraged jobseekers were treated as unemployed, what addition would they make to the unemployment rate? Estimates presented in Table 4-5 suggest that, instead of the actual aggregate unemployment rate of 7.5 per cent in 1980, the rate would range between 8.4 and 9.4 per cent. They would also extend the average duration of unemployment spells significantly. This is natural since the factors inducing discouraged workers to leave the labour force serve to truncate some long spells. Hence, counting these drop-outs as still unemployed would likely add between 9 and 18 days to the average duration of spells, an increase of up to 20 per cent over that actually observed, (as shown in Table 3-3).

Women are more prone to this experience than men: the addition made to their unemployment rate by the inclusion of discouraged workers is about one-third to one-half more than what we find for men. As a consequence, the underrepresentation of women in total long-term unemployment changes to a slight overrepresentation (when we take our most extended definition of discouragement). This is apparent from Chart 4-3. The external circle (labeled A) shows the shares in the labour force of the various groups considered; the inner circle (labeled C) presents the shares of LTU accounted for by the various groups, directly derived from the observed figures (that is, without considering hidden unemployment in the form of labour force withdrawals); and the intermediate circle (labeled B) presents the share of LTU when the discouraged-worker component of labour force withdrawal spells is taken into account. This chart illustrates our basic finding that the discouragement-augmented measure (B) significantly alters the relative impact of LTU on the various labour force groups. The inclusion of hidden unemployment increases the relative share in LTU for women and reduces that for men.

Chart 4-3

Distribution of Men and Women in Labour Market Participation and in Long-Term Unemployment, 1980



A Total labour force aged 15 to 64 years.

B Long-term unemployment, including workers discouraged after three months of job search.

C Long-term unemployment more than six months in duration.

SOURCE Estimates by the authors, based on data from Statistics Canada.

Conclusion

The definition of unemployment involves a degree of arbitrariness. This chapter considers the significance of labour force withdrawals for the measurement of unemployment. At issue is the extent of hidden unemployment caused by worker disouragement, that is, the number of unemployed individuals who cease job search because of its perceived futility in a specific economic context, but continue to want a job and are effectively unemployed but not counted in the official statistics on unemployment.

Hidden unemployment may be measured in alternative ways. In the U.S. data, a distinction is made between those non-participants in the labour force who quit job seeking for job market reasons and others who stop searching actively for personal reasons. The former category is generally considered to come closest to the concept of discouraged workers. With the addition of the second category, the number of discouraged workers, of course, increases considerably.

Two sets of data are available in Canada. The definition of discouraged workers is less restrictive in the case of the March survey than in the case of the monthly survey. In March 1980, the monthly survey reported 64,000 persons desiring a job but not looking for work because they believe "no work is available," whereas the corresponding figure in the March Supplementary Survey was 111,000 persons.

Believing "no work available" is not the only factor in worker discouragement. Adding in "waiting for recall" and "waiting for replies" provides an approximation to worker discouragement that is conceptually related to the functioning of, or conditions in, the labour market. In March of 1980, this figure would be 150,000 persons from the monthly survey and 225,000 persons from the March Supplementary. This is the narrow view of worker discouragement measured traditionally. These figures would be larger still if personal reasons for discouragement were added to give a broader definition of discouragement.

The time-series analysis conducted in this chapter confirms our view that the narrow definition is indeed much more closely related to job availability measures than is the broader definition. Since the essence of discouragement relates basically to perceptions of job availability, the former definition is preferred. We find, for example, that a 1 per cent increase in the employment population ratio reduces the tendency to withdraw from the labour force by some 31 per cent for the "believe no work available" reason but only by a much lower 9 per cent for all reasons, job-related as well as personal.

The data on gross flows permit a fresh approach to the estimation of hidden unemployment. Using only those withdrawal spells which take effect after three or five months of unemployment, we estimate the range of discouraged workers to be between 106,000 to 225,000 persons on monthly average for the year 1980. These figures accord well with the narrow definition of discouragement, and provide a sounder basis for estimating hidden unemployment than the broader definition.

The inclusion of discouraged workers raises not only the unemployment rate but also the distribution of spell lengths as the incidence of long-term unemployment increases. The burden of unemployment, therefore, can be assumed to be more widely shared among different groups than is suggested by duration estimates that consider strict definitions of unemployment only.

Hidden unemployment appears to be a more common phenomenon among women. The unemployment rate augmented by discouraged workers increases more for women than for men. The impact on the average duration of unemployment spells is noteworthy. The gap between the average duration of unemployment for men and women is then slightly reduced.

5 Unemployment and Aggregate Demand

The preceding two chapters have attempted to establish that long-term unemployment plays a major role in determining observed unemployment rates. This conclusion is reinforced when discouragement with job prospects is taken into account. In this chapter, we study the sensitivity of the share of long-term spells in total unemployment to seasonal, cyclical, and structural factors. A knowledge of the contribution of these elements individually is highly relevant for policy purposes. If long spells are the key to understanding unemployment, then the determinants of long spells of unemployment would also hold the key to policies for combatting unemployment. In this chapter, our major hypothesis is that aggregate demand conditions are major determinants of the volume of unemployment and the share contributed by long spells. We argue that the changes in aggregate demand work primarily by influencing the duration rather than the frequency of unemployment.

There are several layers of arguments in support of the hypothesis just described, and the associated methodology is described for each stage. We adopt a time-series approach and utilize gross flow as well as other data from the Labour Force Survey. The hazard function approach described in Chapter 3 is now complemented by a regression analysis using time-series data. Next, we compare two different steady state conditions pertaining to a higher and a lower level of aggregate demand. Various flows in the labour market are examined to identify the impact they have on the frequency and the length of unemployment spells. Then, based upon time-series data from 1971 to 1980, we identify the impact of significant cyclical changes in the aggregate demand. Summing up the analyses of earlier sections brings the chapter to its conclusion.

Comparative Static Analysis

Variations in Duration and Incidence

This section asks the following question: what is the role of various labour market flows in determining the unemployment rates for two years having two different aggregate demand conditions? To answer this question, we compare two steady state conditions pertaining to different levels of aggregate demand. At the time this study was prepared, the choice of the two years was constrained by the fact that comparable gross flow data were available only for the period 1976-80. During this period, the year 1976 recorded the lowest unemployment rate (7.1 per cent) and the year 1978 the highest (8.4 per cent), which we took to represent our peak and trough in the business cycle. Our methodology then consisted of developing the steady state picture for both years and comparing their results. The underlying assumptions are that each of the two states is independent of the other and that the impact of different labour market flows is attributable to different levels of aggregate demand. The restrictiveness of these assumptions is evaluated below.

The unemployment rates for the two years, 1976 and 1978, calculated on the basis of the steady state formula developed in Chapter 2 (equation 2.6), would be 6.7 and 7.7 per cent, respectively (Table 5-1). On this basis, their difference (one percentage point) is close to the 1.3 figure reflected in the published unemployment rates. Table 5-1 reveals that the higher unemployment rate in 1978 is due primarily to a longer average duration of unemployment, D_U, in that year. This factor accounts for 69 per cent of the higher unemployment rate in 1978. The balance, 31 per cent, is caused by the larger incidence of unemployment, i_U. Both these components move in the same direction – they both increase – but the impact of duration outweighs the impact of incidence. This perception is somewhat contrary to the popular view of unemployment dynamics. When unemployment conditions worsen, public attention generally focuses on increased layoffs. What tends to be forgotten is that, as job opportunities shrink, more

Table 5-1

Unemployment Rate Change, 1976 to 1978

	Steady state unemployment rate			Proportion of change due to:	
	1976	1978	Difference	Incidence	Duration
			(Per cent)		
All	6.71	7.74	1.03	30.5	69.5
Men	6.21	7.10	0.89	31.7	68.3
Women	7.54	8.74	1.20	26.6	73.4

SOURCE Estimates by the authors, based on gross flow data supplied by Statistics Canada.

persons join the unemployment queue, and everyone in the line-up takes a longer time to find a job. This phenomenon is more significant for women, since they suffer relatively less from layoffs when economic conditions deteriorate, so the balance between incidence and duration to explain the increase in the unemployment rate turns, for women even more than for men, towards a longer duration of unemployment.

Table 5-2 broadens the perspective of comparison by including the employment picture.[1] The expectation of a higher incidence of unemployment and a lower incidence of employment are borne out. An increase in the incidence of unemployment means that a larger proportion of the unemployed is made up of those persons who have just entered the ranks of the unemployed. This factor should by itself lower the average duration of unemployment. However, since the unemployed generally experience more difficulties in finding jobs under adverse economic conditions, the average duration lengthens, and contributes more to the higher unemployment rate than the increased inflow into the pool of the unemployed. On the employment side, the incidence of employment is lowered, mainly because of restraints on hirings, and the duration of employment is lengthened, for several reasons. The reduced inflow into employment means that persons with shorter durations of employment contribute relatively less to total employment than those employed for longer durations. At the same time, layoff policies generally protect the workers with longer tenures. Additionally, persons who have jobs show a greater preference for holding onto them, and tend to quit less often when employment conditions are unfavourable. The relative changes in both unemployment and employment durations are more pronounced for women than for men when economic conditions deteriorate, which confirms the phenomenon noted above.

Contribution of Individual Labour Market Flows

As we have seen, the unemployment rate, *u*, of a group may increase as a result of either a higher inflow into unemployment or a longer duration of unemployment. These two elements are directly influenced by the behaviour of the various flows discussed in relation with Table 2-3 in Chapter 2. The contribution of each flow to the difference between the unemployment rates for the two years 1976 and 1978 is derived from equation 2.12. The estimates of these contributions are shown in Table 5-3. Since the employment rate, e, is simply $1 - u$, the contribution of each flow to the employment rate differential can be inferred from our discussion of the unemployment rate.

As can be expected, the increase in layoffs, *eu*, and the reduction in hiring activity, *ue*, push up the unemployent rate; this corresponds with earlier results from Table 5-2. However, the main point to emerge from Table 5-3 relates to the role played by persons not in the labour force under different economic conditions – namely, the influence of transition rates *en* and *un*, and of *pne* (see Chapter 2 for definitions).

In a climate of worsening economic conditions, workers are less inclined to leave their jobs voluntarily, and the probability of making a transition from employment to out of the labour force, *en*, tends to diminish for all groups, which would serve to lower the observed unemployment rate other things being equal. In Table 5-3, we note that this is the only flow that reduces the difference between the unemployment rates for the two years. Under recessionary conditions, unemployed persons have to endure longer durations of unemployment, as we noted above, and so discouragement may occur only after searching for a longer period. The probability of

Table 5-2

Contribution of Components to Variations in Unemployment and Employment Rates, 1976 to 1978

	Unemployment rate in 1976*	Change in 1978†	Relative change in unemployment		Relative change in employment	
			Incidence	Duration	Incidence	Duration
			(Per cent)			
All	6.71	+1.03	+4.2	+10.0	-7.7	+7.1
Men	6.21	+0.89	+4.4	+ 9.6	-6.5	+6.0
Women	7.54	+1.20	+4.1	+11.7	-9.9	+9.6

*The employment rate is the complement of the unemployment rate.

†The change in the employment rate is equal in absolute value to the change in the unemployment rate, but presents the opposite sign.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Table 5-3

Contribution of Labour Market Flows to Change in the Unemployment Rate, 1976 to 1978

	Labour market flow					Total change
	eu	*en*	*ue*	*un*	*pne*	
	(Percentage points)					
All	0.15	-0.38	0.44	0.22	0.60	1.03
Men	0.20	-0.31	0.39	0.16	0.44	0.89
Women	0.09	-0.54	0.50	0.32	0.84	1.20

SOURCE Estimates by the authors, based on gross flow data supplied by Statistics Canada.

leaving the labour force, *un*, decreases while the continuation rate, *uu*, rises sharply, yielding a rise in the total *number* of discouraged workers. In addition, the slowdown in hiring activity strongly affects those persons who are entering (or re-entering) the labour force, so the chances of finding a job upon entry also decline, as in fact happened between 1976 and 1978, when *pne* decreased. As a result, the *pne* flow was the factor contributing the most towards the increased rate of unemployment; a worsening *pne* means that the unemployment queue is getting longer.

Our explanation in this section of the respective roles of incidence and duration obviously has some limitations, mainly in regard with the static approach and the hypothesis of independence of the two states compared. These limitations arise because the evolution of economic conditions depends partly on the initial situation and partly, on the subsequent dynamics. In addition, the comparison of 1976 and 1978 is not wholly satisfactory, because the latter year experienced a pause in a long period of expansion (from April 1975 to October 1979), rather than a true cyclical trough. The average number of employed persons in 1978 was 3.4 per cent higher than in the previous year; hence, the increased unemployment must be attributed largely to a very high growth in the labour force,[2] especially among women (+6.0 per cent). Because of those limitations, which may bias the weight of our statements, we have also developed a more extensive time-series analysis with another set of data, as discussed below.

Factors Influencing Long-Term Unemployment

Now we explore factors contributing to the fluctuations in the number of long-term unemployed and in the proportion in which they contribute to total unemployment. The key issue is the role of aggregate demand. To isolate this role, explicit consideration has to be given to seasonal and structural factors as well. For this purpose, we utilize monthly time-series data of the number of unemployed persons in each category of unemployment spell duration for the period January 1971 to December 1980, drawn from the LFS. The unemployment duration is counted up to the survey date and therefore represents in-progress spells. Since we are not measuring the average duration, the length bias inherent in these data need not deter us.

The Model

The dependent variable of most interest to us is given by the ratio of persons who are unemployed for more than six months (27 weeks or more) to the total number of unemployed (U_6/U_T). The behaviour of this ratio over the business cycle is compared with changes in the inflow of persons entering the unemployment pool (U_1). This latter behaviour is captured by the ratio of persons who have been unemployed for one month or less to the total unemployed (U_1/U_T). With any change in the numerators or the denominator, we must also examine the behaviour of all three independently.

There is first the issue of selecting an appropriate variable to depict changes in aggregate economic conditions. For reasons described in the previous chapter, we have used the employment-population ratio, *EPR*, as a proxy for aggregate demand conditions. To take account of the lags, the *EPR* is introduced in the Almon lag formulation. These lags are allowed to work themselves out over a period of 12 months. A polynomial with degree 2 is used to allow for a change in the direction of the impact of aggregate demand conditions.

Since our data are in the form of monthly time-series and because our interest lies in the cyclical impact, it is necessary to take explicit account of seasonal factors in a set of monthly dummy variables, *MD*. The cyclical indicator, *EPR*, is introduced in a seasonally adjusted form. Similarly, a set of yearly dummies, *YD*, is introduced to take account of structural factors specific to each year of data. The resulting model may be written as:

$$U_t = \alpha + \sum_{i=1}^{11} \beta_i MD_i + \sum_{j=1}^{8} \gamma_j YD_j + \sum_{k=0}^{12} \partial_k EPR_{t-k} + \epsilon \qquad (5.1)$$

Table 5-4

Empirical Estimates of Seasonal, Structural, and Cyclical Effects on the Number of Recently Unemployed, 1972-80

	Dependent variable — Recently unemployed					
	Number			Ratio to total unemployed		
	Both sexes	Men	Women	Both sexes	Men	Women
Constant	-282,111	-130,510	-151,573	-126.70*	-130.00**	-131.38**
January	27,921*	40,792*	-12,872*	-3.64*	-2.79*	-4.07*
February	-34,340*	-3,964	-30,376*	-11.27*	-11.50*	-10.19*
March	-37,481*	-5,677	-31,804*	-11.66*	-11.85*	-10.34*
April	-26,991*	1,110	-28,101*	-9.37*	-9.71*	-7.82*
May	-18,019*	1,328	-19,347*	-5.78*	-6.30*	-4.38*
June	4,647	14,940*	-10,293*	-1.56	-0.99	-1.90**
July	14,792**	17,949*	-3,158	-1.37	-0.73	-1.89**
August	-38,395*	-13,776*	-24,619*	-7.55*	-6.12*	-9.13*
September	—	—	—	—	—	—
October	-15,178**	1,758	-16,936*	-2.30*	-0.36	-4.67*
November	-953	19,906*	-20,859*	-2.17*	0.71	-6.42*
December	-6,195	30,501*	-36,696*	-4.98*	-1.41	-10.65*
1972	13,929	10,284	3,645	1.82	1.73	2.70
1973	—	—	—	—	—	—
1974	-181	-100	-80	-1.69	-1.89	-1.35
1975	30,695*	20,410*	10,286	-3.39**	-2.85	-4.24*
1976	98,810*	41,014*	57,797*	3.27**	3.68**	2.02
1977	132,323*	59,909*	72,415*	2.66	3.28	1.27
1978	131,756*	56,058*	75,700*	-0.61	-0.63	-1.53
1979	121,735*	48,461*	73,276*	-1.44	-1.23	-2.74
1980	131,479*	57,663*	73,819*	-3.08	-3.05	-4.31
Lagged *EPR*						
∂_0	3,809	1,801	2,008	0.92*	0.99*	0.95*
∂_1	2,882	1,366	1,516	0.73*	0.78*	0.76*
∂_2	2,061	981	1,080	0.56*	0.59*	0.58*
∂_3	1,346	645	701	0.41*	0.43*	0.43*
∂_4	736	359	378	0.28*	0.28*	0.29*
∂_5	232	121	111	0.17	0.16	0.18
∂_6	-166	-66	-100	0.08	0.06	0.08
∂_7	-459	-205	-255	0.01	-0.01	0.01
∂_8	-647	-294	-353	-0.04	-0.06	-0.04
∂_9	-729	-334	-395	-0.08	-0.10	-0.07
∂_{10}	-705	-325	-380	-0.09	-0.11	-0.09
∂_{11}	-576	-266	-310	-0.08	-0.09	-0.08
∂_{12}	-341	-158	-183	-0.05	-0.06	-0.05
∂_{13}	0	0	0	0	0	0
Total ($\Sigma\partial_k$)	7,445	3,627	3,817	2.83*	2.86*	2.96*
$\bar{R}^2$	0.9456	0.8971	0.9628	0.8843	0.8821	0.8223
DW	1.98	1.85	2.24	1.71	1.65	1.71

*Significant at the 5 per cent level.
**Significant at the 10 per cent level.
SOURCE Estimates by the authors, based on data supplied by Statistics Canada.

where

α, β, γ, and ∂ = regression coefficients to be estimated,

MD_i = a monthly dummy variable with September as the reference month,

YD_j = a yearly dummy variable with 1973 as the reference year,

EPR = the employment-population ratio seasonally adjusted for the entire working-age population, and

ϵ = the random term.

The dependent variable U_t in equation 5.1 is alternatively U_T, U_1, or U_6 in level form and U_1/U_T or U_6/U_T in ratio form. Our analysis reveals that the proportion of long-term unemployed as well as the relative inflow into unemployment is significantly affected by seasonal, cyclical, and structural factors. Regression estimates are provided in Table 5-4 to Table 5-6.

Table 5-5

Empirical Estimates of Seasonal, Structural, and Cyclical Effects on the Number of Long-Term Unemployed, 1972-80

	Dependent variable — Long-term unemployed					
	Number			Ratio to total unemployed		
	Both sexes	Men	Women	Both sexes	Men	Women
Constant	1,362,288*	799,525*	562,746*	166.70*	149.28*	186.63*
January	-9,447*	-8,058*	-1,388	-4.73*	-7.94*	-0.04
February	-888	-2,776	1,888	-3.66*	-6.99*	1.47*
March	10,679*	3,199	7,481*	-2.37*	-5.86*	2.98*
April	21,640*	13,312*	8,328*	-0.31	-3.23*	3.96*
May	21,537*	15,152*	6,385*	1.22*	-0.47	3.22*
June	17,240*	12,778*	4,451*	0.87**	0.16	1.69*
July	12,253*	10,722*	1,532	0.26	-0.17	0.46
August	7,694*	6,764*	930	0.28	0.43	0.15
September	—	—	—	—	—	—
October	-3,522	-2,586	-935	-0.52	-1.24*	0.27
November	-4,874	-2,988	-1,885	-1.90*	-3.41*	-0.12
December	-7,246**	-4,855	-2,390	-3.12*	-5.77*	-0.35
1972	-5,552	2,030	-7,582*	0.06	0.39	-0.57
1973	—	—	—	—	—	—
1974	15,036*	7,398**	7,638*	1.38**	1.00	1.90**
1975	40,010*	22,039*	17,971*	2.51*	1.60	4.15*
1976	54,122*	18,080*	36,042*	2.27*	0.91	4.59*
1977	82,452*	32,494*	49,958*	4.22*	2.55*	6.96*
1978	119,639*	54,046*	65,592*	6.89*	5.42*	9.44*
1979	123,993*	55,689*	68,303*	8.61*	6.66*	11.59*
1980	147,730*	72,161*	75,567*	11.32*	9.31*	14.41*
Lagged *EPR*						
∂_0	-4,431*	-2,840*	-1,590*	-0.16	-0.12	-0.12
∂_1	-3,840*	-2,414*	-1,427*	-0.20	-0.16	-0.19
∂_2	-3,291*	-2,021*	-1,270*	-0.23*	-0.20**	-0.24**
∂_3	-2,784*	-1,664*	-1,120*	-0.26*	-0.22*	-0.29*
∂_4	-2,318*	-1,341*	-977*	-0.27*	-0.23*	-0.31*
∂_5	-1,894*	-1,053*	-840*	-0.28*	-0.24*	-0.33*
∂_6	-1,511*	-800*	-711*	-0.27*	-0.24*	-0.33*
∂_7	-1,171*	-582	-589*	-0.26*	-0.23*	-0.32*
∂_8	-871**	-398	-473**	-0.24*	-0.21*	-0.30*
∂_9	-614	-249	-365	-0.21*	-0.19*	-0.27*
∂_{10}	-398	-135	-263	-0.17*	-0.15*	-0.22*
∂_{11}	-224	-55	-169	-0.12*	-0.11*	-0.16*
∂_{12}	-91	-10	-81	-0.07*	-0.06*	-0.09*
∂_{13}	0	0	0	0	0	0
Total ($\Sigma\partial_k$)	-23,437*	-13,562*	-9,875*	-2.74*	-2.37*	-3.18*
$\bar{R}^2$	0.9294	0.8302	0.9596	0.8366	0.8808	0.7035
DW	1.20	1.03	1.39	1.39	1.44	1.45

*Significant at the 5 per cent level.

**Significant at the 10 per cent level.

SOURCE Estimates by the authors, based on data supplied by Statistics Canada.

Table 5-6

Empirical Estimates of Seasonal, Structural, and Cyclical Effects on the Total Number of Unemployed, 1972-80

	Dependent variable — Number of unemployed		
	Both sexes	Men	Women
Constant	1,554,253**	676,720	877,541*
January	179,559*	184,706*	-5,148
February	179,935*	187,184*	-7,249
March	180,148*	184,605*	-4,456
April	148,595*	163,187*	-14,591*
May	82,743*	97,530*	-14,787*
June	68,314*	68,053*	260
July	69,006*	64,941*	4,065
August	37,766*	27,365*	10,400**
September	—	—	—
October	-1,180	8,823	-10,003
November	43,204*	53,388*	-10,184
December	86,910*	112,714*	-25,803*
1972	5,587	22,220	-16,634**
1973	—	—	—
1974	13,301	-2,840	16,141**
1975	167,797*	93,765*	74,032*
1976	241,577*	58,562*	183,015*
1977	352,577*	113,750*	238,827*
1978	436,044*	159,204*	276,840*
1979	392,374*	121,925*	270,450*
1980	427,347*	144,669*	282,679*
Lagged *EPR*			
∂_0	-12,703*	-10,612*	-2,091
∂_1	-9,463*	-7,588*	-1,875
∂_2	-6,601*	-4,932*	-1,669
∂_3	-4,115*	-2,644**	-1,471**
∂_4	-2,007	-724	-1,283**
∂_5	-275	828	-1,103
∂_6	1,079	2,012	-933
∂_7	2,056	2,829*	-773
∂_8	2,656	3,277*	-621
∂_9	2,879	3,358*	-478
∂_{10}	2,725	3,070*	-345
∂_{11}	2,194	2,415*	-221
∂_{12}	1,285	1,391*	-106
∂_{13}	0	0	0
Total ($\Sigma\partial_k$)	-20,290	-7,321	-12,969**
$\bar{R}^2$	0.9669	0.9441	0.9850
DW	0.92	0.96	1.12

*Significant at the 5 per cent level.

**Significant at the 10 per cent level.

SOURCE Estimates by the authors, based on data supplied by Statistics Canada.

Seasonal and Structural Factors

The seasonal coefficients from Table 5-4 are depicted in Chart 5-1. The inflow into unemployment exhibits marked seasonality, with January, June, and July representing the highest inflows. The pattern for men and women differs widely and masks additional differences by age group, which are to be examined in Chapter 7. We note now that for men the month-to-month fluctuations are quite large. There are two seasons of inflows, one beginning in October and ending in January, the other in June and July. August reveals the lowest rate of inflow. Beginning in October, men enter the unemployment pool with the seasonal downturn in some industries. This pattern is followed by lower than average inflow in February and March. The inflow picks up again in June and July followed by a large decline in August. Women, in contrast, have peak inflows in September. Then the level decreases as fall progresses. The month of December shows the lowest inflow, largely due to low level of entry into the labour force at that time of the year.

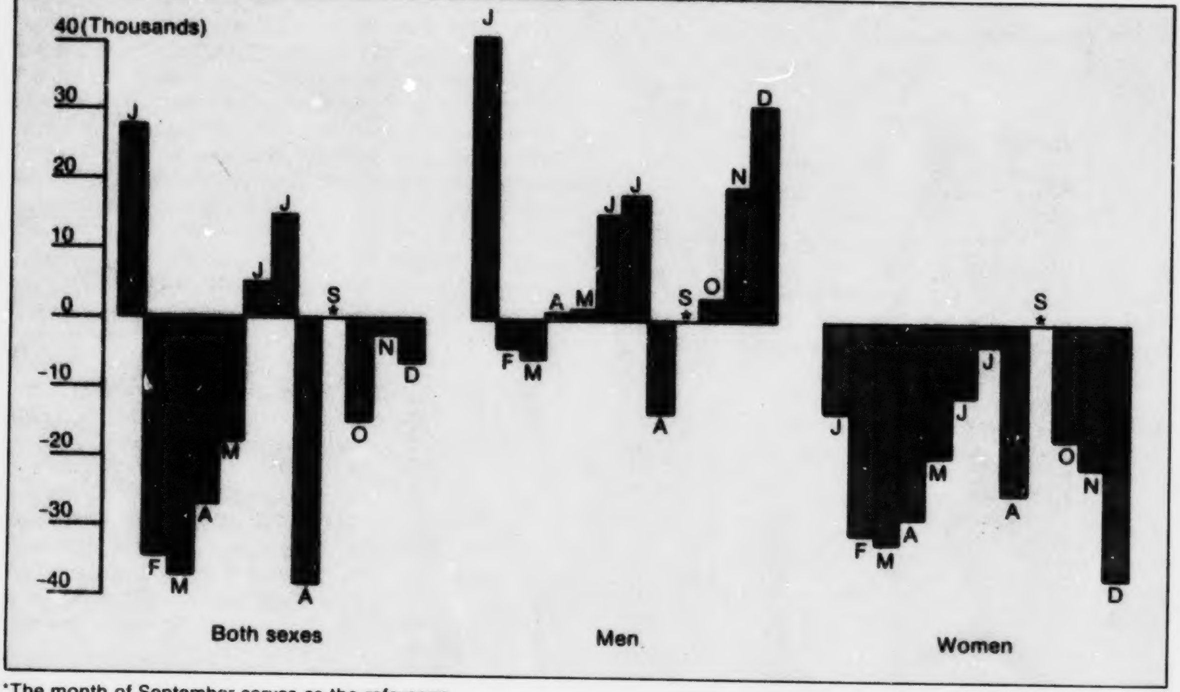
Surprisingly, even the number of long-term unemployed exhibits a definite imprint of seasonality, though limited compared with the inflows (Chart 5-2). In this case, the pattern is broadly similar for men and women although not as pronounced for the latter. The number of long-term unemployed begins rising above the reference level in March and is higher than this level throughout the summer. In winter, it is lower than the reference point. This pattern seems to reflect the pattern of inflows with a six-month delay.

Chart 5-3 presents seasonality coefficients for the total number of unemployed. There is a marked decline in this coefficient in the summer and the early fall. The number begins to increase in November and continues at high levels throughout the winter. Surprisingly, the amplitude of fluctuations is very small in the case of women; in fact, their seasonal coefficients are significant only for a few months – April, May, and December at a low level, August at a high (Table 5-6). But men clearly exhibit large seasonal variations in the number of unemployed: other things being equal, seasonality itself explains a difference of 185,000 unemployed between the high level of the first quarter and the low point of September. This seasonal variation accounts for more than two-fifths of the average number of men unemployed during the decade, which was 430,000.

In addition to the seasonal element, there is a strong element of what we can call "structural" unemployment, since we have controlled for the cyclical movements. But the pattern in this regard is not the same if we consider the different time series (see Tables 5-4 to 5-6). However, one common element to the three time series is the break between 1975 and 1976; this may largely be due to the introduction of new survey procedures and definitions at that time. The fact that women appear to be much

Chart 5-1

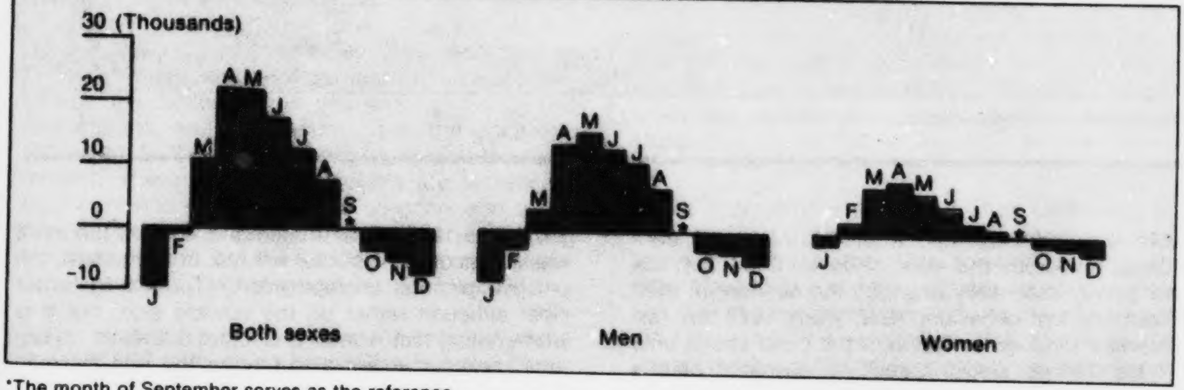
Effect of Seasonality on the Number of Recently Unemployed Persons*



*The month of September serves as the reference.
SOURCE Table 5-4.

Chart 5-2

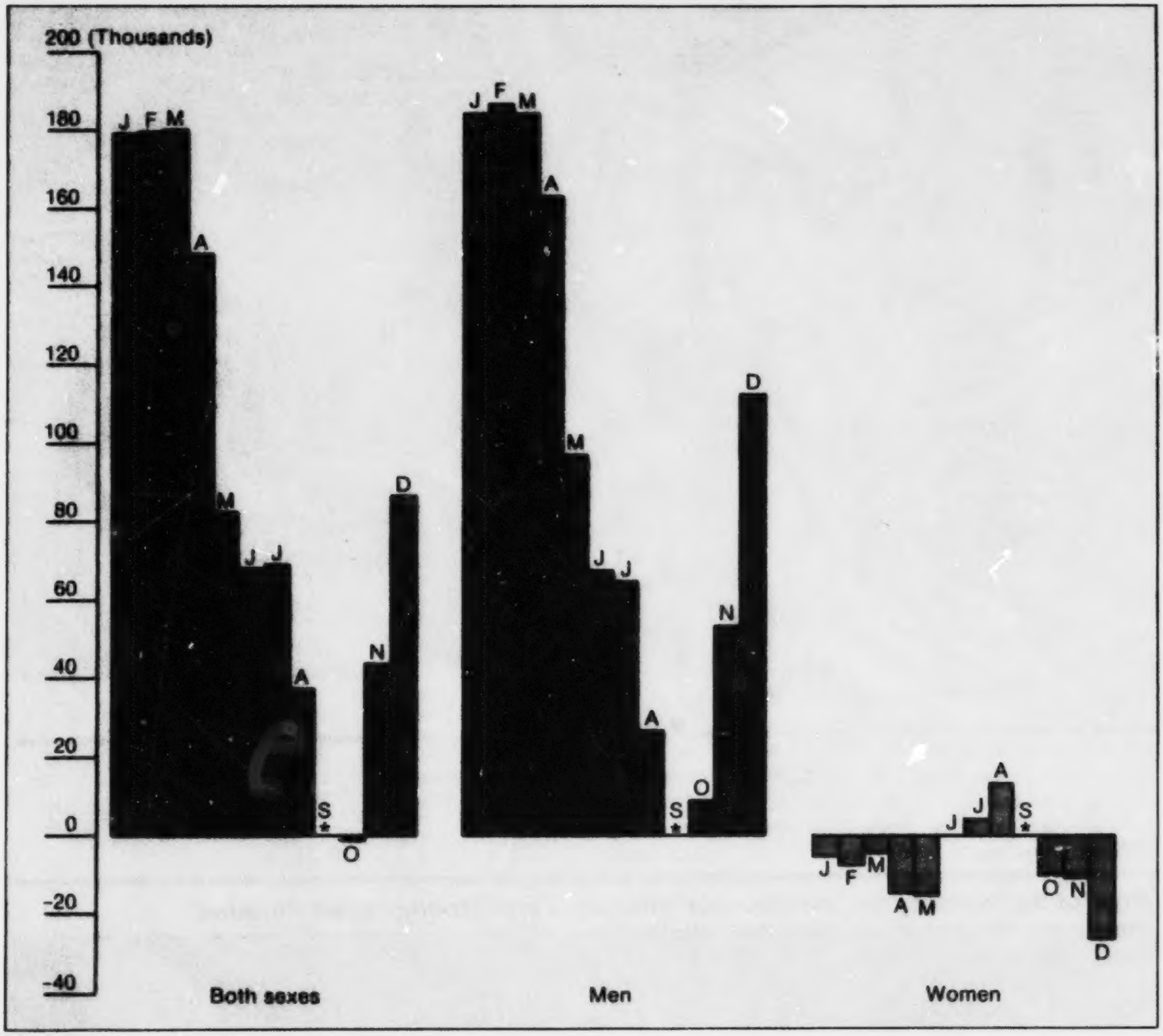
Effect of Seasonality on the Number of Long-Term Unemployed Persons*



*The month of September serves as the reference.
SOURCE Table 5-5.

Chart 5-3

Effect of Seasonality on the Total Number of Unemployed Persons*



*The month of September serves as the reference.
SOURCE Table 5-6.

more affected than men whatever the series considered reinforces this view, since we know that the new survey essentially changed the account of their labour market behaviour. But, from 1977 on, we observe a different evolution of the trend coefficients for the various series. Structural elements play a neutral role in the number of newly unemployed (Table 5-4): the level of "structural" monthly flow into unemployment remained fairly constant from 1977 until 1980 for both men and women, though it was significantly higher for women. In this regard, the pattern for total unemployment (Table 5-6) is not clear although rather on the upward side; but it is worth noting that women encounter a level of "structural" unemployment about twice the one for men (283,000 women compared with 145,000 men in 1980). Quite different from these two series, is the trend pattern of the long-term unemployment series

(Table 5-5). In this case, the structural element shows a clear upward trend of the same magnitude for both men and women. Even the proportion of unemployment accounted for by long-term unemployment grew rapidly over the years examined. We cannot discard the hypothesis that the Canadian economy underwent structural changes during the 1970s, which worsened the underlying unemployment situation. Some studies have suggested that the "natural rate of unemployment" during this period increased significantly since the 1960s [Fortin and Newton (1982)].

Comparing the trend coefficients of the three equations permits a decomposition of what we see as a structural increase in unemployment. From 1976 to 1980, the number of "structurally" unemployed increased by 186,000 persons. More than half of this total is due to the "structural" augmentation of the number of long-term unemployed (54,000 men and 40,000 women) and less than 20 per cent is accounted for by a "structural" increase in the incidence of unemployment, here depicted by the number of persons unemployed for less than one month.[3] This result could be a starting point for further research on the increase in structural unemployment experienced in the Canadian economy during the past decade.

The Cyclical Impact

With an increase in the employment-population ratio, signifying growth in the economic activity, one would expect the number of unemployed to diminish. This impact may be instantaneous – that is, in the same month and/or spread over several months. Table 5-4 to 5-6 present the regression coefficients of each month's impact, given that the *EPR* has increased by one percentage point in the reference month. Our expectation is borne out in that the number of the unemployed is negatively related to the *EPR* (Table 5-6); an improvement in the economic climate reduces the number of unemployed in the first four months, and a deterioration in the economic picture swells the number unemployed over the same months. These monthly coefficients are statistically significant and exclusive of the seasonal and structural impact. After the fifth month, the relationship becomes positive, but the coefficients are not statistically significant. The net impact remains negative.

The relationship of the inflow into unemployment, U_1, with *EPR* is found to be positive but statistically insignificant (Table 5-4). Improvements in the economic climate tend to increase the inflow, while a worsening is associated with reduced flow into unemployment. But because this result lacks significance, we must consider the inflow into unemployment as insensitive to changes in the *EPR*.

This seemingly counterintuitive finding may be the result of the two opposing influences of the aggregate economic environment on various types of flows into unemployment. Layoffs, for instance, are expected to decline with improved aggregate demand outlook, and therefore reduce the inflow into unemployment. There are several ways in which the same circumstances may induce more people to become unemployed. For example, some workers may quit jobs voluntarily and look for better opportunities. Quits are known to behave procyclically. Similarly, workers previously discouraged with the labour market may, with improvement in job prospects, return to the labour force to begin a job search afresh, some of them as unemployed persons. These two opposing sets of influences may cancel each other to a large degree, and therefore account for the statistically insignificant result observed.

Consider now the behaviour of the inflow into unemployment as a proportion of the total unemployed, the ratio U_1/U_T. If U_1 moves procyclically and U_T anti-cyclically, as described above, it follows that U_1/U_T will be strongly positively correlated with *EPR*. This is precisely what we find in the last three columns of Table 5-4. Here, the positive relationship is statistically significant. Since we know that U_1 is less sensitive to *EPR* than is U_T, the behaviour of U_1/U_T is largely determined by the effect of changes in aggregate demand on U_T. The major impact on total unemployment therefore comes from the reduced amount of time spent by jobseekers in the pool of unemployed when economic conditions improve, and from the added time that they remain trapped in unemployment when economic conditions deteriorate. Put differently, changes in economic climate operate more by affecting the duration of unemployment rather than the incidence of unemployment. This is precisely the result we obtained when two steady state conditions were compared above.

This conclusion is reinforced when we look at the other end of the duration of unemployment spectrum. Table 5-5 shows that the number of long-term unemployed has a highly significant negative association with the movements in *EPR*. As the employment ratio increases, the number of LTU diminishes. The impact is felt significantly not only in the same month but for eight months thereafter. The negative impact continues in later months but is not statistically significant.

But are the long-term unemployed more cyclically sensitive than other groups of unemployed? This question is answered in the last three columns of Table 5-5. A one percentage point increase in aggregate demand conditions, *EPR*, lowers the proportion of long-term unemployed by 2.7 percentage points. An improvement in aggregate demand conditions lowers the number of long-time unemployed proportionately more than that of all unemployed; U_6/U_T diminishes, and this negative relationship is statistically significant. This impact begins to take hold two months after a change in economic conditions, and continues for the rest of the twelve-month period studied. The maximum impact, however, is in the fifth month.

Surprisingly, with regard to the cyclical impact on long-term unemployment, men and women do not exhibit markedly different behaviour. The findings just expressed for the entire population seem to hold for the two groups, with only minor differences. But we should recall that this is not the case for the seasonal and structural impacts.

Conclusion

In Chapters 3 and 4, we emphasize the role of long-term unemployment in determining the officially measured levels of unemployment. Given this role, is long-term unemployment sensitive to aggregate demand conditions? This question is examined in this chapter. Several different approaches and data sources are used. Our conclusion is that long-term unemployment is highly cyclical in nature; variations with fluctuations in the economic climate are more pronounced for the long-term unemployed than for all unemployed. There are, in addition, certain secular factors that have increased the occurrence of LTU over the decade of the 1970s; seasonal elements also play a part. The policy implications of these findings are straightforward. Attempts to lower the observed levels of unemployment would gain considerably by focusing on the LTU group. The incidence of LTU can be reduced by aggregate demand policies. At the same time, the need for some structural policy is also identified. However, what the analysis shows clearly is that unemployment in Canada cannot be treated exclusively as a structural maladjustment problem.

6 Employment Patterns in the Canadian Economy

The preceding three chapters have explored the qualifications that must be applied to the turnover characterization of the unemployment experience in Canada. The large proportion of short spells of unemployment may be treated as an equilibrating force in the labour market, but they cannot be considered very potent if their contribution to total unemployment is quite limited. The importance of long spells of unemployment is even greater when disguised unemployment is taken into account. Thus, both the quantitative significance of unemployment flows and the existence of worker discouragement limit the importance of turnover in the labour market. The question now arises as to the impact that employment patterns have on the appropriate characterization of unemployment. This chapter examines the employment side of the market. It reinforces our view of labour market turnover gained from the study of unemployment and of discouragement behaviour. Contrary to flow perceptions, the Canadian employment picture is more accurately described by a great deal of permanence. While there are a large number of short employment spells, the average spell in which employment occurs is a very long one. Thus, permanence rather than rapid turnover is the main characterization of the employment side of the labour market as well. If this description is accurate, it has major implications both for the nature of unemployment and for labour market policies. The policy considerations will be taken up in the concluding chapter.

This chapter develops the "permanence" theme just described. The analysis proceeds by describing first the background of broad employment patterns in Canada in recent years. Estimates of completed spells are derived under steady state conditions. The now familiar idea that completed spells of employment are brief is supported. However, this is not the most relevant concept for answering the question: what is the eventual length of an employment spell currently in progress? This question may be answered by the concept known as the "experience-weighted" spells. The data on in-progress spells are used to derive the experience-weighted measures on the basis of steady state assumptions. An alternative approach, without the steady state assumption uses job tenure distributions obtained by sampling randomly among workers to derive, among other things, the eventual tenures of jobs currently held. Then, after a brief look at the nature of short employment spells, we conclude the chapter.

Some Background Perspective

Over the past three and a half decades 1946-80, the Canadian economy experienced massive shifts of employment into the service sector, raising its share in employment from 41 in 1946 to 67 per cent by 1980. In contrast, the employment share of the goods sector has been declining steadily, from about 59 per cent in 1946 to 33 per cent in 1980. The growth of service activities has been particularly conducive to female employment: the proportion of women employed in the service industries was 48 per cent in 1980 as opposed to 22 per cent in the goods-producing industries. Almost all increases in female employment are occuring in the service industries, which lend themselves more easily to part-time and part-year employment. About 72 per cent of all part-time jobs were held by women and 86 per cent of all part-time workers were employed in the service sector in 1980.

In recent years, the proportion of part-time employment in the economy has itself increased from about 11 per cent in 1976 to 14.4 per cent in 1982 (Table 6-1). To the extent that this increase reflects an involuntary situation, since a significant share of part-timers would prefer working full time,[1] one can expect some increase in job turnover as part-time workers move to locate themselves in full-time jobs.

The labour-hoarding phenomenon has also attracted some attention recently. When faced with a decline in cyclical demand for their output, employers often choose to retain workers on their payrolls rather than, after laying them off, to incur costs of searching, screening, hiring, and training new ones at the time of a subsequent upswing in economic activity. When the downswing is a prolonged one, labour hoarding rates may fall. Changes in labour hoarding rates have implications for transition rates between employment and other states of the labour market. Although this behaviour would appear to be mainly a cyclical phenomenon, Siedule and Newton (1979*a*) argued that labour hoarding has shown an upward trend since 1971. If this were true, we would antici-

Table 6-1

Full-time and Part-time Employment, 1975-82

	Full-time employment	Part-time employment	Part-time as a share of total employment
	(Thousands)		(Per cent)
1975	8,296	988	10.6
1976	8,432	1,047	11.0
1977	8,519	1,129	11.7
1978	8,764	1,208	12.1
1979	9,068	1,301	12.5
1980	9,268	1,387	13.0
1981	9,456	1,477	13.5
1982	9,052	1,522	14.4

SOURCE Statistics Canada, Historical Labour Force Statistics — Actual Data, Seasonal Factors, Seasonally Adjusted Data, cat. no. 71-201.

pate lower transition rates in the labour market, other things being equal.

Recently a great deal has been written about the impact of new technology. Although much of it is still speculative, it has been argued that one impact of the new technology is to divide occupations into a lot of poor quality jobs requiring little training and paying poor wages, and another category of a relatively limited number of good jobs. Middle order jobs, characteristic of the manufacturing sector appear to be in decline. If this hypothesis is true, it may mean that, with shorter job ladders than at present, the average period of job tenure may diminish. If so, the impact of long-term employment arrangements on wage determination may also weaken. The link between current marginal productivity of workers and their current wages may be stronger than under long-term employment arrangements. These issues represent new areas of research, and they are mentioned here in that context.

Steady State Analysis of Employment Duration

A first look at employment durations is obtained from gross flow data with the help of the technique described in Chapter 2. As in the case of the unemployment rate, *u*, the employment rate, *e*, can be expressed in terms of its two components, the incidence and the duration of employment:

$$e = i_e \cdot D_e \qquad (6.1)$$

where

i_e = the proportion of labour force becoming employed each month and

D_e = the (expected) average duration of employment.

The parallel with equation 2.9 in Chapter 2 is to be noted. Under the steady state assumptions, the term D_e is obtained by the reciprocal of the probability of leaving employment:

$$D_e = 1/(eu + en) \qquad (6.2)$$

Since the employment rate is simply 1–*u* and *u*, the unemployment rate, is given by $u = \alpha / \alpha + \beta$, we have:

$$e = [\beta / (\alpha + \beta)] \qquad (6.3)$$

where α and β retain the descriptions provided in Chapter 2.

These equations are now applied to gross flow data described in Chapter 2 (Table 2-3). As can be seen from these data, some 4.1 per cent of employed individuals move out of employment each month, on average. Taking January-February 1981 for illustration (Table 2-2), we observe that some 468,000 persons entered employment over this period, while some 347,000 left employment either to go out of the labour force or to seek another job as unemployed. Typically, for the labour force as a whole, exit out of the labour force is a stronger reason for job separation than is unemployment. However, it should be noted that this result arises largely because women leave jobs and move out of the labour force in relatively large proportions.

The estimated employment rate and its two components are depicted in Table 6-2. On the basis of the steady state analysis, we find that some 3.8 per cent of the labour force flows into employment in an

Table 6-2

Employment Rate and Its Components, 1980

	Employment Rate		Incidence of employment	Duration of employment
	Actual	Calculated		
	(Per cent)			
All	92.5	92.85	3.83	24.27
Men	93.1	93.22	3.20	29.15
Women	91.6	92.32	4.75	19.42

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada; and Statistics Canada, The Labour Force, cat. no. 71-001, December 1980.

average month. This incidence of employment is larger for women. The duration of completed spells of employment is quite brief, just slightly more than two years. However, duration of employment for women is shorter than that for men by some ten months. The sex differential in incidence appears to be more than compensated by the corresponding duration differential, so the employment rate for men is higher than for women. It is the brevity of such spells that has given rise to perceptions of employment as highly unstable, especially for women. However, as the analysis below attempts to document, the concept of the average completed spell measured across jobs is inappropriate for the purposes at hand.

The Experience-Weighted Approach

As described in Chapter 2, the completed spell measured across jobs is best understood as describing the average length of time that all jobs beginning at a given time are likely to be held. This measure weights each spell equally and not according to the length of the spell, and is consequently affected by the much more numerous shorter spells. As can be observed from Table 6-3, fully 61 per cent (100–38.9) of all terminated spells – terminated in the sense of the gross flow data, that is, spells ending during the interval between two surveys – are of a year or less in duration. In comparison, notice that only about a quarter of in-progress spells are of this variety. These in-progress spells at month *t* represent 95.9 per cent of all employment spells already in-progress at month *t*–1 (see Table 2-3); they can be used to derive another average duration concept, one that measures the length of time the employment spells currently in progress will eventually last when completed. This concept is described as an "experience-weighted" measure and describes the average expected length of employment spells that are *currently in progress*. A simple way of obtaining these measures is by doubling the estimate derived from the in-progress spells on the assumption that steady state conditions apply; this gives a very different picture of the duration of employment patterns.

Table 6-3

Proportion of Employment Due to Spells Exceeding a Specific Length, 1980

	In-progress spells		Completed spells	
	Share of total spells	Share of total employment	Share of total spells	Share of total employment
Duration exceeding:				
3 months	91.2	99.8	67.0	98.7
6 months	84.7	99.5	51.0	96.7
12 months	75.9	98.6	38.9	93.8
3 years	66.2	93.4	22.1	83.1
5 years	43.7	86.4	15.0	73.4
10 years	25.3	68.7	7.9	56.2
15 years	15.4	52.1	4.7	43.0
20 years	9.9	39.2	3.2	30.5

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Indeed, long-term job attachments are an important feature of the Canadian economy. This can be seen with the help of data on job tenures, also drawn from the Labour Force Survey. Each month, Statistics Canada presents estimates of the length of time employed persons have been in their current job. These estimates are based on tenures currently in-progress, and therefore they represent incomplete spells. The average length of interrupted spells in Canada in 1980 was 8.7 years for men and 5.6 years for women. From the doubling theorem described in Chapter 2, the average length of an experience-weighted spell length in Canada is therefore 17.5 years for men and 11.1 years for women. These data give an indication of the long-term nature of jobs in the Canadian economy.

In addition to the large difference by sex, there are significant differences by industry and occupation. By industry, Agriculture exhibits by far the longest tenures: the mean completed spell lasts as long as 27.3 years in this sector of the economy. For men, Transportation and related industries, Public administration, and Manufacturing exhibit longer than average tenures, while service industries experience the shortest attachment to jobs (13.7 years in Trade and 14.1 years for Service). Aside from Agriculture and Other primary industries, variations in tenure by industry in the case of women are not very large.

Data by occupation (Table 6-5) reveal that Managerial, professional, and other related occupations, Clerical occupations, Primary occupations, and Materials handling exhibit longer than average attachments for both men and women. But, really, apart from the Primary occupations, variations are not as wide around the mean as in the case of classification by industry.

This broad picture for Canada is similar to that for the United States (Akerlof and Main, 1981). For the year 1973, the mean duration of completed spells for white men and women in the United States was estimated to be 17.2 and 11.1 years, respectively – numbers, very close to the Canadian estimates for 1980. The similarities by industry are also noteworthy. Data for Britain (Main, 1981) also point to

Table 6-4

Average Tenure of Jobs by Industry, 1980

	Mean in-progress spells	Mean completed spells
	(Years)	
All workers		
Total	7.4	14.8
Agriculture	13.7	27.3
Non-agriculture	7.1	14.2
Other primary industries	7.4	14.8
Manufacturing	8.5	17.0
Construction	5.9	11.8
Transportation, communication, and other utilities	9.8	19.6
Trade	6.0	12.0
Finance, insurance, and real estate	6.7	13.4
Service	5.9	11.8
Public administration	9.0	18.0
Men		
Total	8.7	17.5
Agriculture	14.6	29.3
Non-agriculture	8.4	16.8
Other primary industries	7.8	15.6
Manufacturing	9.6	19.2
Construction	6.0	12.0
Transportation, communication, and other utilities	10.8	21.5
Trade	6.9	13.7
Finance, insurance, and real estate	8.3	16.6
Service	7.1	14.1
Public Administration	10.7	21.4
Women		
Total	5.6	11.1
Agriculture	11.8	23.6
Non-agriculture	5.4	10.7
Other primary industries	4.8	23.9
Manufacturing	5.9	11.7
Construction	4.9	9.8
Transportation, communication, and other utilities	6.8	13.5
Trade	4.8	9.7
Finance, insurance, and real estate	5.5	11.1
Service	5.2	10.3
Public administration	5.8	11.6

SOURCE Estimates by the authors, based on Statistics Canada, The Labour Force, cat. no. 71-001.

Table 6-5

Average Tenure of Jobs by Occupation, 1980

	Mean in-progress spells	Mean completed spells
	(Years)	
All workers		
Total	7.4	14.8
Managerial, professional, and other related	8.4	16.8
Clerical	6.2	12.3
Sales	6.5	12.9
Service	5.2	10.4
Primary occupations	11.6	23.2
Processing	8.1	16.1
Construction	7.3	14.5
Transportation	8.0	16.0
Materials handling and other crafts	7.6	15.2
Men		
Total	8.7	17.5
Managerial, professional, and other related	9.7	19.4
Clerical	9.1	18.1
Sales	7.7	15.5
Service	6.8	13.6
Primary occupations	11.8	23.6
Processing	8.7	17.4
Construction	7.4	14.8
Transportation	8.3	16.7
Materials handling and other crafts	8.2	18.4
Women		
Total	5.6	11.1
Managerial, professional, and other related	6.6	13.3
Clerical	5.4	10.7
Sales	4.7	9.4
Service	3.9	7.8
Primary occupations	11.3	22.7
Processing	5.9	11.8
Construction	4.6	9.3
Transportation	3.9	7.9
Materials handling and other crafts	5.7	11.5

SOURCE Same as for Table 6-4.

very long attachments to job. The average length of job for persons currently employed during the 1970-76 period was found to be in excess of 20 years for men and about 12 years for women. Job lengths varied substantially by industry: for men, tenure in both Construction and Service was relatively short (15.8 and 15.5 years, respectively) whereas it was quite long (34.1 years) in mining.

In using the "experience-weighted" measure, the limitations of steady state assumption need of course to be borne in mind. Over long periods of time, the flow into employment is not constant but varies with changing cyclical factors and secular trends. In addition, the steady state assumption is inappropriate for age cohorts whose future participation in the labour market is likely to be very different from their past experience, as is the case with young and older workers.

The Retention Rate Approach

Questions may be raised about our use of the steady state methodology and whether our results would be different with a more realistic assumption. In a recent paper, Hall (1982) uses the concept of "marginal retention rates" to construct eventual job tenures. In this section, we borrow his methodology and, applying it to the job tenure data mentioned previously, derive estimates of mean job duration for the Canadian economy, for different age-sex groups.[2]

Eventual job tenures are composed of two elements: the actual reported tenure up to the time of the survey and the additional time that a worker is likely to spend in his current job. This additional time can be projected on the basis of the probability that a worker with a given age and tenure will retain his current job for a given number of years. The so-called "retention probabilities" can be obtained in two different ways. One is to derive "historical retention rates" by linking the age-tenure category in one survey to a correspondingly higher age-tenure category in a later survey. The second way consists of considering the same method within the results of only one survey date; the "contemporaneous retention rate" is then a simulation of population aging. The results of both methods are presented in Table 6-6. Only selected five-year age cohorts are shown in the table.

The calculation of the historical retention rates uses the years 1976 and 1981.[3] The cohort of persons aged 20 to 24 years in the 1976 survey is matched with that for persons aged 25 to 29 years in 1981. The tenures are also adjusted. This process is repeated for each age cohort. The retention rate is simply the ratio of the proportion of people in a given age group and with a given tenure category in 1981 to the proportion of people in the age group five years younger and with a correspondingly lower tenure category in 1976. The contemporaneous retention rates are obtained through the same process, except that age-tenure categories for 1981 are used in place of age-tenure categories for 1976; in addition, appropriate adjustments are made for differences in the population for each age category. The two retention rates would be similar under stable structure of job tenure over time. Since the size of the age groups and their participation rates are not constant, slightly different results are obtained. And since none of the methods is really longitudinal, it is difficult to choose between them on a theoretical basis. But it is more practical to deal with the contemporaneous retention rates; this is what we do in the remainder of this section.

There is a substantial probability that current jobs will last for an additional five years. Even for the youngest age cohort, age 20 to 24 years, of those

Table 6-6

Historical and Contemporaneous Employment Retention Rates for Selected Age Cohorts, 1976-81

Age in 1976	Tenure in 1976	Share of cohort		Age in 1981	Tenure in 1981	Share of cohort in 1981	Historical retention rate 1976-81	Contemporaneous retention rate 1981
		in 1976	in 1981					
(Years)		(Per cent)		(Years)			(Per cent)	
20-24	0-5	64.1	64.5	25-29	5-10	19.9	31.0	30.8
30-34	0-5	40.9	42.1	35-39	5-10	17.8	43.5	42.2
	5-10	16.2	19.5		10-15	12.0	74.2	61.9
	10-15	10.4	11.6		15-20	8.2	78.8	70.7
40-44	0-5	30.2	31.1	45-49	5-10	14.7	48.6	47.2
	5-10	14.6	16.1		10-15	10.4	70.9	64.2
	10-15	9.7	11.5		15-20	8.0	82.2	69.7
	15-20	7.3	8.8		20-25	6.8	92.6	77.2
	20-25	7.2	6.5		25-30	6.1	84.3	93.1
50-54	0-5	20.2	20.1	55-59	5-10	9.5	47.3	47.4
	5-10	11.0	11.9		10-15	8.6	77.5	71.8
	10-15	8.0	9.5		15-20	5.7	70.8	59.8
	15-20	6.4	7.4		20-25	5.5	86.9	74.5
	20-25	6.5	5.9		25-30	5.2	79.8	87.5
	25-30	6.8	6.5		30-35	5.5	80.2	83.7
	30-35	4.3	5.0		35+	4.3	100.5	85.5

SOURCE Estimates by the authors, based on job tenure data supplied by Statistics Canada.

currently holding a job for five years, approximately 31 per cent continued on in the same job for an additional five years. The five-year retention probability is sensitive to the age of the worker and the tenure already achieved. Two generalizations are feasible from these data. One, holding current tenure constant, retention rates are, with some exceptions, highest at mid-career (persons aged 40 to 44 years). Two, for each age cohort, the longer the current tenure, up to tenures of about 20 years, the higher the probability that an additional five years will be spent in the same job.

The figure of five years for additional tenure is used here to illustrate the use of retention rates. Many workers continue on in their jobs for much longer periods. In order to estimate actual job tenures, complete sets of retention rates are needed for each age cohort. This complete set can only be developed by applying the contemporaneous retention rates.

Using the contemporaneous retention rates, we can estimate the distribution of eventual tenure across all age and tenure categories for all Canadian workers in 1981 (Table 6-7). According to these data, the median duration of current jobs was nine years in 1981. This means that half of the workers currently held a job that would eventually last more than nine years, counting the years it had already lasted. So measured, the duration of employment appears to be between the completed spell measure and the experience-weighted duration measure. The degree of permanence of jobs is further reflected in the fact that some 28.4 per cent of workers are currently in jobs that will likely last more than 20 years, and 19.6 per cent in jobs that will likely last 30 years or more. At the other extreme, about one in five jobs currently in progress will likely terminate within two years and about 30 per cent within three years.

Table 6-7

Distribution of Jobs by Eventual Tenure, 1981

	All	Men	Women
		(Per cent)	
Job tenure:			
Less than half a year	8.4	8.0	8.9
Half to 1 year	6.7	5.6	8.5
1 to 2 years	4.6	3.6	6.1
2 to 3 years	9.4	7.9	11.6
3 to 5 years	8.6	7.1	10.8
5 to 10 years	15.4	12.6	19.4
10 to 15 years	11.3	10.7	12.4
15 to 20 years	7.3	7.7	6.4
20 to 25 years	4.0	3.1	5.2
25 to 30 years	4.8	5.2	3.7
30 to 35 years	11.2	16.4	3.6
More than 35 years	8.4	12.4	3.4
		(Years)	
Median job tenure	9.0	12.4	6.1

SOURCE Estimates by the authors, based on job tenure data supplied by Statistics Canada.

These data confirm the broad difference in length of employment spells between men and women: with 6.1 years, the median duration of an employment spell for women is less than half of that for men (12.4 years). Current jobs lasting more than 20 years represent only about 16 per cent of jobs held by women, whereas they constitute 37 per cent for men.[4]

From these data, a dual structure of jobholding is apparent. Large numbers of short-term jobs co-exist with quasi-permanent jobs for a large proportion of workers. This apparent contradiction is explained by the typical jobholding pattern whereby new entrants to the job market experiment with several brief jobs before they land a job lasting several years. This process of multiple experimentation is clear from our data and can be shown in two alternative ways.

In the first approach, we notice from Table 6-8 that the probability of any new job[5] lasting a lifetime – measured here by a minimum of 20 years – is very small indeed; it does not rise above 10 per cent for any age-sex group. In their younger years, men have twice as high a probability of entering a lifetime job as women; then, along with aging, this probability rises for both the sexes, but the difference between them widens, peaking at more than three times as high for men by the age of 35 to 39 years. A typical

Table 6-8

Probability of a New Job Lasting 20 Years, 1981*

	All	Men	Women
		(Per cent)	
Age:			
15 to 16 years	1.0	1.3	0.7
17 to 19 years	0.7	0.9	0.4
20 to 24 years	3.2	4.2	1.9
25 to 29 years	5.1	7.4	2.2
30 to 34 years	5.6	8.5	2.5
35 to 39 years	6.6	10.2	3.2
40 to 44 years	5.0	7.6	2.7
45 to 49 years	1.0	1.3	0.7

*A new job is one that has lasted less than half a year at the time of the survey.

SOURCE Estimates by the authors, based on job tenure data provided by Statistics Canada.

Table 6-9

The Process of Moving Into Long-Term Jobs 1981

	Proportion of workers starting a new job*	Probability of retaining a new job for five years	Proportion of workers with five years of job tenure	Probability of extending a five-year tenure to 20 years or more
	(Per cent)			
Age:				
15 to 16 years	53.0	3.5	8.6	29.9
17 to 19 years	47.5	2.2	8.6	29.9
20 to 24 years	29.1	9.7	30.3	32.9
25 to 29 years	17.8	14.7	44.1	34.7
30 to 34 years	14.0	16.9	52.4	33.3
35 to 39 years	11.0	19.2	59.1	34.2
40 to 44 years	9.6	20.1	65.3	24.8
45 to 49 years	8.2	19.8	70.3	4.9
50 to 54 years	7.2	19.5	76.1	0.0
55 to 59 years	5.6	20.1	78.8	0.0
60 to 64 years	5.2	5.6	77.7	0.0

*A new job is one that has lasted less than half a year at the time of the survey.

SOURCE Estimates by the authors, based on job tenure data provided by Statistics Canada.

worker, then, has to experiment with several jobs before locating a near permanent match. And this experimentation is most rationally done in the early years of labour market participation, since the cost of experimentation is lower then than in later years, the choice of potential careers is wider, and job information is relatively limited. This explains why the proportion of workers beginning a new job declines steadily with age, as can be seen from Table 6-9. At the same time, the probability that a given job will last five years is extremely small for younger cohorts. Once the five-year benchmark is reached, however, the probability that the job will eventually last 20 years or more becomes significant even for the younger cohorts.

A second way of illustrating this process of settling into a permanent job is by examining a number of jobs held by a typical worker over his working life. For the Canadian economy as observed in 1981, the data are shown in Table 6-10. As expected the number of new jobs entered within a year is highest in late teens and early twenties, and the rate declines throughout the later working life. Over an entire career, the typical worker is expected to hold about 10 different jobs. About six of these are entered into by the thirtieth year. Only two additional jobs are held after age 40.

It is often claimed – and our results confirm this – that women in the labour market are at a disadvantage in finding and holding permanent jobs. In this context, it may be *a priori* surprising that the number of jobs held by women during their work life is in fact lower than that for men (nine versus eleven, Table 6-10). The reason for the fewer number of jobs held by women is not that they keep them for longer periods, but rather – as we have seen earlier – that they interrupt their career, and withdraw from the labour force more often than men.[6]

Table 6-10

Number of New Jobs Held Per Worker, 1981

	New jobs per year	New jobs over the interval	Cumulative number of new jobs		
			All	Men	Women
Age:					
15 to 16 years	.339	0.7	0.7	0.7	0.6
17 to 19 years	.528	1.6	2.3	2.3	2.2
20 to 24 years	.411	2.1	4.3	4.6	4.0
25 to 29 years	.265	1.3	5.6	6.1	5.2
30 to 34 years	.210	1.1	6.7	7.2	6.1
35 to 39 years	.168	0.8	7.5	8.1	7.0
40 to 44 years	.146	0.7	8.3	8.8	7.7
45 to 49 years	.121	0.6	8.9	9.4	8.3
50 to 54 years	.098	0.5	9.4	10.0	8.7
55 to 59 years	.065	0.3	9.7	10.4	9.0
60 to 64 years	.044	0.2	9.9	10.7	9.1
65 years or older	.009	0.0	9.9	10.8	9.1

SOURCE Estimates by the authors, based on data supplied by Statistics Canada.

The Nature of Short-Term Employment Spells

The preceding section has documented the importance of near-permanency in job tenures in the Canadian economy. At the same time, a high degree of job turnover is also reported, which is most apparent for younger cohorts. To this extent, job turnover appears to have strong age-related and some sex-related dimensions. What is unclear, however, is whether, within an age cohort, job instability is related to specific groups of individuals. Are these groups alone in the process of moving through various cohorts, generating most of the observed job turnover? In other words, is the distribution of job turnover related to an individual's characteristics rather than to demand side phenomena? And if we isolate these individuals, does the rest of the workforce experience an even greater job stability? The analysis of such questions requires a longitudinal data base, to which this study did not have access. Although not directly relevant to these issues, the data on annual work experience do permit us to analyse the nature of short-term spells and shed some light on the high frequency of such spells.

The *Annual Work Pattern Survey* (AWPS) provides estimates of employment spells begun and completed during a year. Excluding the spells that are in progress at either end of the calendar year, we find that, during the year 1979, the last year for which data were available at the time of writing, some 3.5 million of these short spells were recorded. As shown in Table 6-11, the average number of spells per person is 1.34. Surprisingly, persons aged 25 years and over experience greater than average number of spells. Women aged 25 to 44 years are largely responsible for this effect. The cohort aged 45 to 64 years, whether women or men, experiences significantly more short spells than other age groups. As expected, teen-agers encounter about a third of all short spells, and young adults aged 20 to 24 years experience a further 18 per cent. This evidence fits in with the job-shopping behaviour of this group as described in the preceding section and with their seasonal employment pattern (as we will see in the next chapter).

An interesting aspect of short employment spells is learned from tracing the labour force status of the workers before and after (Table 6-12). It is remarkable that nearly 64 per cent of these spells are preceded and followed by non-participation in the labour force. For women, this type of short spells accounts for more than 70 per cent of all spells.

Table 6-11

Characteristics of Short-Term Employment Spells, 1979

	Number of spells	Distribution	Number of persons	Number of spells per person
	(Thousands)	(Per cent)	(Thousands)	
All workers				
All ages*	3,473	100.0	2,585	1.34
15 to 19 years	1,139	32.8	880	1.30
20 to 24 years	628	18.1	537	1.17
25 to 44 years	1,070	30.8	761	1.41
45 to 64 years	533	15.3	351	1.52
Men				
All ages*	1,730	49.8	1,383	1.25
15 to 19 years	628	18.1	498	1.26
20 to 24 years	357	10.3	312	1.14
25 to 44 years	434	12.5	349	1.24
45 to 64 years	240	6.9	183	1.31
Women				
All ages*	1,743	50.2	1,202	1.45
15 to 19 years	512	14.7	381	1.34
20 to 24 years	272	7.8	225	1.21
25 to 44 years	637	18.3	411	1.55
45 to 64 years	293	8.4	168	1.74

*Includes persons aged 65 years and over.

SOURCE Special tabulations from Statistics Canada's Annual Work Patterns Survey.

These data suggest that most of the short-duration employment spells can be traced either to job-shopping behaviour or to weak attachments to the labour force. In either case, they are unlikely to serve as strong equilibrating force in the labour market, since most employment and wage decisions in the economy are not affected by these movements.

Table 6-12

Distribution of Short-Term Employment Spells by Type, 1979*

	Spell type				
	UEU	UEN	NEU	NEN	All spells
	(Per cent)				
All workers	14.3	12.4	9.8	63.5	100.0
Men	18.7	13.4	11.2	56.6	100.0
Women	9.8	11.4	8.4	70.3	100.0

*See Chapter 2 for definitions of spell types. These spells were begun and completed during the calendar year.

SOURCE Special tabulations from Statistics Canada's Annual Work Patterns Survey.

Conclusion

After dealing extensively with unemployment and not-in-the labour force status in the previous chapters, we examine employment in the present one to find out whether the picture of a rapid job turnover is accurate. In fact, although the average length of a completed spell of employment is rather brief, because of the significant proportion of short spells, the actual pattern is better described by the great importance of long spells and even of "lifetime" jobs. It is appropriate in concluding this chapter to recall that half the persons currently employed are in the course of a job that will last at least nine years. Although men and women present different patterns, long-duration jobs are very significant in both cases.

7 Demographic Aspects of Turnover and Job Instability

The discussion so far has been largely restricted to the labour market experience of men and women without regard to their age distribution. This chapter then specifically looks at various demographic groups that make up the labour force and, in so doing, especially focuses on the behaviour in the youth labour market. The youth population (aged 15 to 24 years) in Canada has been growing since the mid-1950s. Although its growth rate has slowed down in recent years – and even declined for teen-agers (aged 15 to 19 years) – its impact on the labour force has been largely offset by the growth in their participation rate. In consequence, in 1980, teen-agers formed some 11 per cent of the labour force (Table 7-1). An additional 16 per cent was comprised of young adults (aged 20 to 24 years). Together, these two groups whom we shall describe as youth – make up an important segment of the labour force, and merit serious study on this basis alone. In addition, the rate of unemployment for youth, which has always been higher relative to other age groups, rose to about 2.8 times the rate for prime-age males by the mid-1970s.

Table 7-1

Youth in the Labour Force, 1956-83

	Proportion of labour force composed of youth					Unemployment rate						
	15 to 19 years		20 to 24 years		15 to 24 years		25 to 44 years	15 to 19 years		20 to 24 years		15 to 24 years
	Men	Women	Men	Women	All	All workers	Men	Men	Women	Men	Women	All
						(Per cent)						
1956	5.52	4.43	8.11	4.61	22.67	3.1	2.7	8.1	4.7	4.7	2.2	5.0
1957	5.58	4.31	8.02	4.47	22.38	4.1	3.6	10.9	5.0	6.8	3.3	6.8
1958	5.46	4.28	7.96	4.52	22.22	6.2	5.6	16.3	7.9	10.5	4.6	10.2
1959	5.40	4.41	7.84	4.41	22.06	5.3	4.7	14.2	7.2	8.7	4.3	8.9
1960	5.36	4.53	7.65	4.47	22.01	5.8	5.5	16.1	9.2	10.3	4.5	10.3
1961	5.17	4.61	7.53	4.51	21.82	6.3	5.7	16.1	9.2	9.9	4.7	10.2
1962	5.30	4.56	7.42	4.64	21.92	5.4	4.5	13.8	8.5	8.5	4.2	8.9
1963	5.49	4.53	7.57	4.77	22.36	5.0	4.1	13.4	8.1	8.1	4.6	8.7
1964	5.49	4.65	7.76	4.89	22.79	4.3	3.3	11.9	8.3	6.6	3.8	7.6
1965	5.64	4.78	7.96	5.11	23.49	3.6	2.7	10.1	7.2	4.7	3.5	6.3
1966	5.55	4.90	8.13	5.58	24.16	3.4	2.4	8.9	6.8	4.4	3.1	5.6
1967	5.56	4.84	8.35	5.91	24.66	3.8	2.8	10.7	8.0	4.9	3.5	6.5
1968	5.48	4.74	8.53	6.31	25.06	4.5	3.3	12.4	9.0	6.3	4.6	7.7
1969	5.32	4.70	8.68	6.52	25.22	4.4	3.0	11.9	9.6	6.2	4.3	7.6
1970	5.46	4.65	8.72	6.55	25.38	5.7	3.9	14.8	12.6	8.9	5.8	10.0
1971	5.52	4.79	8.74	6.75	25.80	6.3	4.2	16.1	13.5	9.4	7.0	11.0
1972	5.81	4.97	8.69	6.63	26.10	6.2	4.0	15.1	12.4	9.8	8.5	10.9
1973	6.10	5.19	8.64	6.70	26.63	5.6	3.3	12.5	11.4	8.2	7.4	9.6
1974	6.33	5.39	8.71	6.72	27.15	5.3	3.2	12.1	10.8	7.7	7.4	9.3
1975	6.27	5.29	8.62	6.91	27.09	6.9	4.3	15.4	14.4	10.5	9.1	12.0
1976	6.02	5.20	8.66	6.98	26.86	7.1	4.3	16.3	15.1	11.1	9.8	12.7
1977	6.08	5.07	8.67	7.10	26.92	8.1	5.0	18.1	16.7	12.6	11.7	14.4
1978	5.98	5.05	8.65	7.12	26.80	8.4	5.3	18.5	17.2	12.7	11.5	14.5
1979	6.05	5.18	8.64	7.12	26.99	7.5	4.6	16.4	15.8	11.1	10.4	13.0
1980	5.90	5.11	8.57	7.18	26.76	7.5	5.0	17.1	15.3	11.5	10.7	13.2
1981	5.61	4.92	8.53	7.09	26.16	7.6	5.3	17.0	15.5	12.3	10.1	13.3
1982	4.97	4.50	8.38	7.12	24.97	11.0	9.1	24.6	18.9	19.0	14.3	18.8
1983	4.62	4.21	8.03	7.08	23.93	11.9	10.3	24.2	20.1	21.4	15.2	19.9

SOURCE Statistics Canada, The Labour Force, cat. no. 71-001. Adjustment has been made by the authors for changes in the Labour Force Survey in 1975.

The adverse labour market experience of youth causes additional concerns in view of the recent performance of the Canadian economy. It is widely feared that, with economic recovery being slow and weak, the youth cohort may suffer permanent damage to its long run-labour market prospects.

In this gloomy perspective, the turnover view appears to be anachronistic. Most unemployment is seen by the proponents of this view as arising from rational responses of individuals attempting to optimize their incomes or utility. They cite large movements in the labour market in support of their views. Their argument seems especially relevant for youth who contribute disproportionately to labour force movements.

Despite this debate and the importance of youth in the Canadian labour market, only limited empirical work has been done on this subject.[1] We now apply the methodology employed in previous chapters to examine the problems of youth unemployment in Canada. The wider context of youth labour market participation, that is, the employment and non-participation patterns, are treated in addition to the unemployment experience. A major focus of the analysis is to compare the behaviour of teen-agers and young adults, and to contrast their experiences with that of the prime-age group (aged 25 to 44 years). The general nature of labour market flows is examined, and these flows are used to isolate the independent effect of the incidence of unemployment from its duration. The effect of seasonality is also treated. The question of concentration of unemployment is taken up with the help of measures of completed spells; the impact of labour force withdrawals permits us to assess the significance of hidden unemployment. The employment experience of the various demographic groups is addressed by examining the duration of employment and its distribution. Our concluding remarks end the chapter.

Labour Market Flows among Demographic Groups

A Gross Flow Perspective

Table 7-2 provides the labour market transition probabilities for each demographic group in 1980. Several generalizations may be drawn from these data. With some exceptions, teen-agers exhibit much larger flow probabilities than do other age groups. For example, on average, about 12.3 per cent of teen-agers separate from employment, *eu* + *en*, in any given month, a figure which is 4.4 times the rate for prime-age adults and 2.3 times the rate for young adults. About 50 per cent of unemployed teen-agers move out of unemployment each month, a somewhat

Table 7-2

Labour Market Transition Rates among Age-Sex Groups, 1980

	Labour market flow						
	eu	*en*	*ue*	*un*	*ne*	*nu*	*pne*
				(Per cent)			
Both sexes							
All ages	1.55	2.57	23.97	19.03	3.79	2.93	56.40
15 to 19 years	3.58	8.69	24.43	25.94	9.15	6.10	60.00
20 to 24 years	2.33	2.99	25.57	15.05	8.23	8.27	49.88
25 to 44 years	1.27	1.53	23.89	16.70	4.85	4.15	53.89
45 to 64 years	0.91	1.68	21.16	19.56	2.25	1.74	56.39
Men							
All ages	1.63	1.80	25.37	14.83	5.36	4.38	55.03
15 to 19 years	4.22	8.33	25.32	23.63	9.73	6.71	59.18
20 to 24 years	2.80	2.73	27.51	11.02	11.97	11.11	51.86
25 to 44 years	1.33	0.67	25.38	10.36	12.47	13.26	48.46
45 to 64 years	0.88	1.02	22.44	16.20	3.97	4.04	49.56
Women							
All ages	1.42	3.73	22.27	24.15	3.13	2.32	57.43
15 to 19 years	2.85	9.11	23.28	28.91	8.61	5.53	60.89
20 to 24 years	1.78	3.30	23.18	20.02	6.29	6.80	48.05
25 to 44 years	1.19	2.86	22.24	23.76	3.99	3.12	56.12
45 to 64 years	0.97	2.89	19.46	24.04	1.82	1.17	60.87

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada, and Table 2-3.

larger percentage than is the case with adults and young adults (both 41 per cent). It can be seen from the data that the experience of young adults is more often closer to that of adults than of teen-agers.

A third generalization relates to the role of age on transitions in and out of the labour force. The inflow into the labour force, $ne + nu$, rises with age initially, then declines monotonically after the age of 24. This relationship is, in fact, complicated by differences in the participation behaviour among demographic groups, especially between men and women. In general, the smaller the "stock" of non-participating people, the higher the transition rate. The probabilities of entering the labour force for adult men and women are an expression of this relationship. Thus, in examining these rates, the size of the "stocks" should be kept in mind. Teen-agers, both men and women, have fairly high and similar rates of transition (16 and 14 per cent, respectively) since they move in and out of the labour force more often than any other group. For young adults and other older adult groups, the transition rates are very different for men and women, and this difference arises mainly from their different participation behaviour: more than one in four men aged 25 to 44 years not in the labour labour force in a given month is found either employed or unemployed the following month; the corresponding proportion is only 7 per cent for women in the same age category.

Finally, entry into the labour force may not be directly to employment. It is then interesting to compare the rate of successful entry, pne – which is defined in Chapter 2 – across the age and sex groups. Teen-agers have a higher rate of successful entry (60 per cent) than other cohorts, perhaps because they are less choosy about taking jobs relative to other groups. Compared with others, young adults present a lower rate (close to 50 per cent) as they try, in larger numbers, to locate a suitable, more durable job at the start of their permanent attachment to the labour force. As for adult groups, the difference in probability of successful entry for men and women is large, the latter having a higher rate of successful entry: participation among women may be more directly related to actual job opportunities than is the case for men, who often may not have any other "choice" but to be in the labour force.

Two conclusions may be drawn from the foregoing description. First, the youth labour market exhibits a great deal of mobility. While the youth experience is different from the adult one in all flows excepting ue, the distinction is especially sharp in terms of flows out of employment. Most of these transitions are exits out of the labour force which points to a key difference between the work experiences of youth and prime-age workers. Second, within the youth group, there is a distinction between the labour market experiences of teen-agers and young adults. Most studies and data on youth labour markets concentrate on the combined age bracket of 15 to 24 years. Our analysis suggests that the experience of teen-agers is very different from that of those aged 20 to 24 years. There are significant differences in the labour market experience of male and female teen-agers, which require separate treatment as well. Thus, much insight is lost if all youth are combined into one category for analysis.

A Steady State Analysis of the Impact of Flows

What is the impact of these flows on the unemployment rate experience? Using the methodology developed in Chapter 2, Table 7-3 presents estimates of the unemployment rate and its decomposition in terms of incidence and duration of unemployment among demographic groups. On the basis of this analysis, it appears that the higher rates of unemployment experienced by teen-agers arise primarily from their greater likelihood of becoming unemployed.

Table 7-3

Unemployment Rate and Its Components among Age-Sex Groups, Monthly Average, 1980

	Calculated unemployment rate	Incidence of unemployment	Duration of unemployment
	(Per cent)		(Months)
Both sexes			
All ages	7.15	3.07	2.33
15 to 19 years	15.00	7.55	1.99
20 to 24 years	10.37	4.21	2.46
25 to 44 years	5.67	2.30	2.46
45 to 64 years	4.86	1.98	2.46
Men			
All ages	6.78	2.73	2.49
15 to 19 years	16.24	7.95	2.04
20 to 24 years	11.02	4.25	2.60
25 to 44 years	5.22	1.87	2.80
45 to 64 years	4.38	1.69	2.59
Women			
All ages	7.68	3.57	2.15
15 to 19 years	13.56	7.08	1.92
20 to 24 years	9.63	4.16	2.32
25 to 44 years	6.43	2.96	2.17
45 to 64 years	5.80	2.52	2.30

SOURCE Estimates by the authors based on gross flow data provided by Statistics Canada, and Table 2-5.

Their higher incidence of unemployment is only partially compensated by the duration of the unemployment spell, which is, on average lower than that for other demographic groups. Notice also the pronounced difference between teen-agers and young adults in their unemployment experience: the incidence of unemployment for teen-agers is about 1.8 times greater than for young adults, while the duration of unemployment is about half a month shorter. The duration of unemployment for young adults is much closer to that for adults than for teen-agers.

In regard to the differences between men and women of different age groups, it is noticeable that teen-aged and young adult women exhibit both shorter spell durations and lower incidences than their male counterparts while adult women experience higher incidences of unemployment coupled with significantly lower durations of spells.

Turning now to the employment side, the higher unemployment rate of teen-agers implies that their employment rate is lower than that of other age groups. Because of their obviously more limited experience in the labour force, younger persons are also expected to have shorter durations of employment than older cohorts. At the same time, their incidence of employment is likely to be greater than is the case with adults, since they transit from out of the labour force to participation in relatively larger numbers. These expectations are supported by Table 7-4. In an average month of 1980, 10.4 per cent of teen-agers entered employment and stayed employed for an average of 8.2 months. The corresponding figures for the prime-age group are respectively 2.6 per cent and 35.7 months.

Table 7-4

Employment Rate and Its Components among Age-Sex Groups, Monthly Average, 1980

	Calculated employment rate	Incidence of employment	Duration of employment
	(Per cent)		(Months)
Both sexes			
All ages	92.85	3.83	24.27
15 to 19 years	85.00	10.43	8.15
20 to 24 years	89.63	4.77	18.80
25 to 44 years	94.33	2.64	35.71
45 to 64 years	95.14	2.46	38.61
Men			
All ages	93.22	3.20	29.15
15 to 19 years	83.76	10.51	7.97
20 to 24 years	88.98	4.92	18.08
25 to 44 years	94.78	1.90	50.00
45 to 64 years	95.62	1.82	52.63
Women			
All ages	92.32	4.75	19.42
15 to 19 years	86.44	10.34	8.36
20 to 24 years	90.37	4.59	19.69
25 to 44 years	93.57	3.79	24.69
45 to 64 years	94.20	3.65	25.84

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada, and Table 6-2.

Relative to teen-agers, young adults experience a much lower incidence of employment (4.8 per cent), which is more than compensated by a longer average duration of employment (18.8 months), so their employment rate is, on balance, higher (89.6 versus 85.0 per cent). In general, the employment experience of young adults is quite distinct from that of teen-agers and more akin to that of older age groups. In this regard, young men and women present similar patterns.

Unemployment Rates and Relative Importance of Labour Market Flows

Continuing on another aspect of the gross flows influencing the unemployment rates, Table 7-5 depicts the unemployment rate differential between various age-sex groups and the reference group of prime-age males.[2] The unemployment rate for male teen-agers in 1980 was 11.02 percentage points higher than the rate for prime-age males, the differential being comprised of the separate impact of each labour market flow. The first three flows depicted tend to raise the teen-age unemployment rate relative to the reference group, while other flows contribute to lower it. The largest single contribution to the higher unemployment rates for male teen-agers can be traced to the flow from employment to out of the labour force (7.88 percentage points). The flow from employment to unemployment is also a major factor (6.44). Thus job separations, often in the form of high rates of labour force withdrawals, appear to lie at the heart of higher unemployment rates for teen-agers.

The impact of all other flows combined is somewhat secondary. It is interesting to note that the success rate in finding a job on entry (or re-entry) into the labour force serves to lower teen-age unemployment rates relative to the reference group. That is, once out of the labour force, a teen-ager's chances of finding work are marginally better than for the reference group. These observations hold with more or less equal force for female teen-agers.

As for young adults, while the first two flows depicted raise their unemployment rates relative to that for the reference group, they are much less important than for teen-agers.

Table 7-5

Contribution of Labour Market Flows to Unemployment Rate Differences between Prime-Age Males and Other Age-Sex Groups, 1980

	Labour market flow					
	eu	*en*	*ue*	*un*	*pne*	Total difference
	(Percentage points)					
Difference in unemployment rate for:						
Men						
15 to 19 years	6.44	7.88	0.02	-2.24	-1.65	11.02
20 to 24 years	3.88	2.71	-0.51	-0.08	-0.24	5.80
45 to 64 years	-1.34	0.53	0.44	-0.43	-0.05	-0.85
Women						
15 to 19 years	3.44	8.65	0.58	-2.82	-2.05	8.34
20 to 24 years	1.22	3.68	0.49	-1.03	0.04	4.40
25 to 44 years	-0.38	2.82	0.54	-1.21	-0.59	1.21
45 to 64 years	-1.00	2.81	1.02	-1.98	-0.98	0.58

SOURCE Estimates by the authors, based on gross flow data supplied by Statistics Canada.

Seasonality and Labour Market Behaviour among Demographic Groups

A major facet of labour market that distinguishes some demographic groups from others relates to their temporary attachment to the labour force, which often is of a seasonal nature. Chart 7-1 presents data on monthly transition rates from employment to out of the labour force, *en*, and from out of the labour force to employment, *ne*. These two flows characterize the high summer activity of the youth labour markets. Teen-agers find jobs at high rates during May and June (the transition rate *ne* shoots up), and leave jobs at equally high rates thereafter. The transition rate from employment to out of the labour force peaks as schools reopen in September. For young adults, in comparison, *ne* peaks earlier, in May, and *en* has a much lower peak, indicating that many of the summer labour force participants try to attach themselves permanently to the labour force. The experience of the prime-age group shows almost no seasonality in *en* but *ne* does exhibit some seasonality, perhaps due to the labour force behaviour of mothers with children of school-going age: the transition from out of the labour force to employment for this latter group is lowest in the summer months and peaks when schools reopen and women move back to jobs.

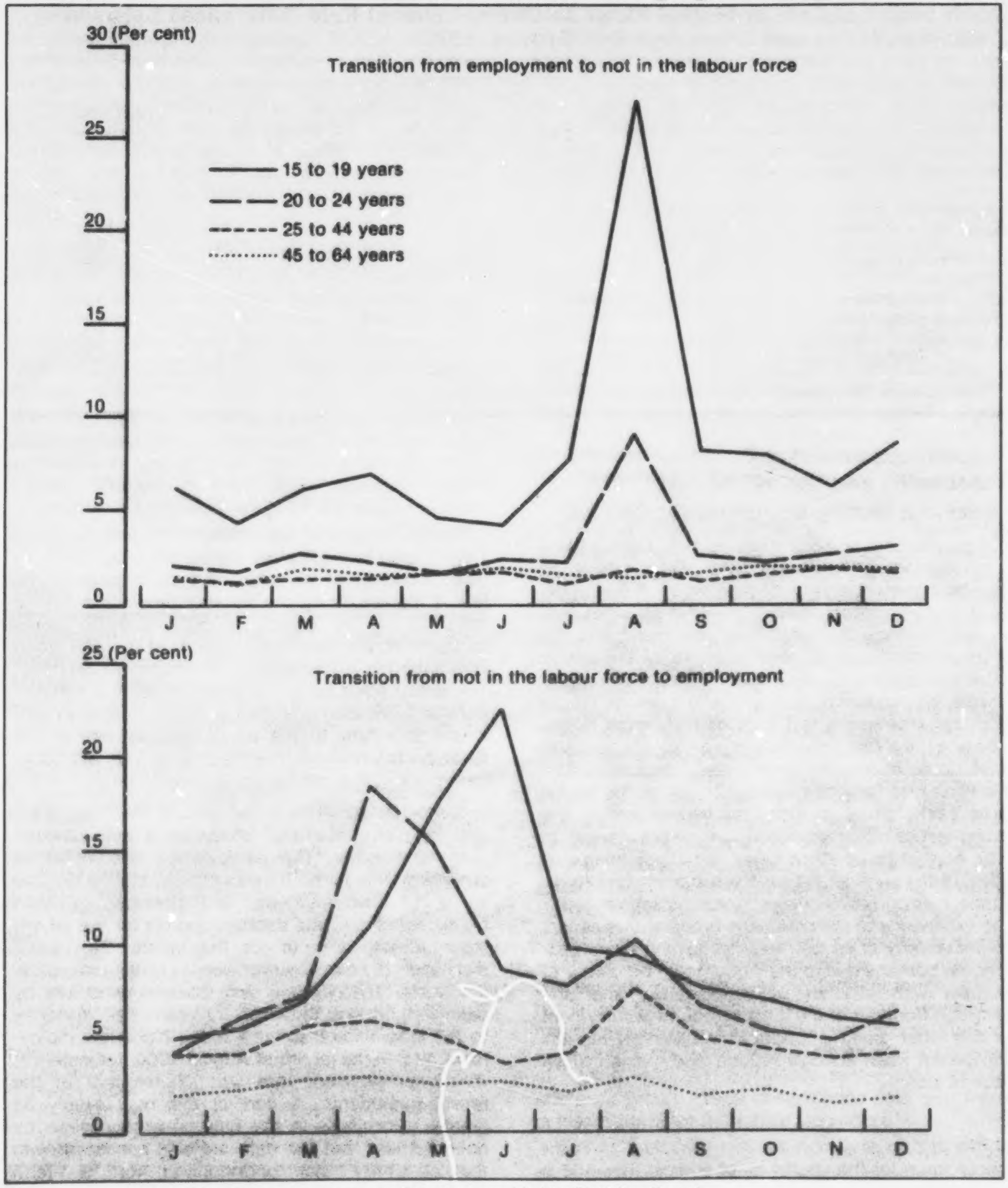
This picture of a high summer participation in the labour force for the youths is, of course, reflected in the "stock" data. In April 1980, they were 2,913,000 youths aged 15 to 24 years participating in the labour force, increasing to 3,558,000 in July (the "peak" month), and then back to 3,009,000 in September.

Another aspect of seasonality is provided in Table 7-6. A large proportion of the cohort aged 15 to 19 years consists of students who participate in the labour market during the summer only and return to school in the fall. These "returning students" make up about 86 per cent of all students of this age group who enter the labour market in the summer months.[3] The group aged 20 to 24 years presents a different picture: more than one-third of these persons do not intend to return to the educational system in the following fall, and are thus looking for jobs with long-term perspective, not temporary ones.

The behaviour of these two groups, the "returning" and the "non-returning" students, is quite distinct from each other. The participation rate increases sharply in June for both these groups, but much more so for the "non-returnees." In September, as would be expected, the rate declines sharply for the returning students, but not for the others. The major distinction to note, however, relates to the unemployment rate. The non-returning students, who are, by definition, seeking to attach themselves permanently to the labour force suffer a much higher unemployment rate. In the month of August 1980, for instance, their unemployment rate was double that of the returning students. A part of this may simply be greater choosiness in the type of work desired by non-returnees, but the data are also consistent with the possibility that opportunities for long-term employment may be lacking. This latter possibility certainly requires greater attention and study.

Chart 7-1

Monthly Probabilities of Labour Market Transition among Age Groups, 1980



SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Table 7-6

Comparison of Labour Market Experiences of Students during the Summer of 1980

		May	June	July	August	September
		(Per cent)				
Returning Students:						
Men						
15 to 19 years	PR*	40.2	57.2	68.7	64.0	38.0
	UR†	12.5	18.8	15.4	10.1	10.2
	EPR‡	35.1	46.5	58.1	57.5	34.2
20 to 24 years	PR	68.4	79.8	83.8	80.2	29.5
	UR	19.9	10.7	5.9	6.0	8.7
	EPR	54.8	71.2	78.8	75.4	26.9
Women						
15 to 19 years	PR	35.7	48.9	59.5	55.4	35.0
	UR	11.3	16.9	14.6	9.7	10.5
	EPR	31.7	40.6	50.9	50.1	31.3
20 to 24 years	PR	66.4	77.8	80.7	75.8	36.0
	UR	19.6	10.2	4.8	...	...
	EPR	53.4	69.9	76.8	72.4	33.8
Other Students:						
Men						
15 to 19 years	PR	53.1	70.9	84.5	86.1	84.6
	UR	14.8	21.1	20.0	20.6	16.3
	EPR	45.2	55.9	67.6	68.4	70.8
20 to 24 years	PR	62.7	81.4	85.8	90.8	89.2
	UR	22.0	14.9	12.7	16.6	16.9
	EPR	48.9	69.2	74.9	75.7	74.1
Women						
15 to 19 years	PR	51.5	62.0	79.3	83.0	80.6
	UR	16.9	25.3	24.4	21.5	20.0
	EPR	42.9	46.3	60.0	65.2	64.5
20 to 24 years	PR	65.0	78.3	79.2	82.1	79.0
	UR	26.5	14.2	15.4	16.9	18.8
	EPR	47.7	67.2	57.0	68.2	64.2

*PR = participation rate.
†UR = unemployment rate.
‡EPR = employment-population ratio.
SOURCE Statistics Canada, The Labour Force, cat. no. 71-001.

Further evidence of the seasonal nature of youth labour markets may be obtained from examining the probability of re-entry into the labour force after a period of joblessness (Table 7-7). As for other groups, the probability of re-entry for youths is largest after a duration of joblessness of up to three months. After three months, this probability declines, only to increase sharply after a jobless interval of seven to 12 months. This large increase suggests seasonality. Notice also that the increase, which is sharper for teen-agers than for young adults, is closely related to the higher proportion of teen-agers and young adults who find jobs upon re-entry into the labour force. That this pattern is indicative of seasonality supported by the lack of similar experience among persons aged 25 years and over. In their case, the probability of re-entry into the labour force declines continuously as the period of joblessness lengthens.

The Unemployment Experience among Demographic Groups

The Duration and Concentration of Unemployment

Earlier, in Chapter 3, we argued that, for several reasons, the brevity of the average duration of completed spells of unemployment may be a misleading indicator of the burden of unemployment and

Table 7-7

Probability of Labour Force Re-entry after a Period of Joblessness, 1980*

	Proportion of former workers re-entering the labour force					Proportion of re-entrants finding work				
	All ages	15 to 19 years	20 to 24 years	25 to 44 years	45 to 64 years	All ages	15 to 19 years	20 to 24 years	25 to 44 years	45 to 64 years
						(Per cent)				
Duration of joblessness:										
1 to 3 months	29.09	27.20	28.12	34.38	28.79	63.1	66.8	51.0	64.5	64.0
4 to 6 months	17.40	15.15	16.98	23.06	18.02	53.9	56.0	51.0	52.9	52.6
7 to 12 months	18.77	24.76	22.71	16.47	13.83	54.4	60.8	53.5	45.1	49.0
1 to 5 years	4.28	16.68	8.70	5.92	3.02	43.9	44.9	37.0	43.9	42.7
More than 5 years	0.88	-	5.92	2.53	0.93	56.8	-	57.1	50.2	64.5
Average	6.72	15.25	16.50	9.00	3.99	56.4	60.0	49.9	53.9	56.4

*These data, which exclude new entrants to the labour force, are drawn from transitions from not in the labour force (NLF) to either employment or unemployment. As defined by Statistics Canada, this NLF period is calculated from the date of termination of the previous job and may therefore contain a period of unemployment. That explains the choice of the term "joblessness" rather than NLF.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

of the ease of finding jobs. From this perspective, it is more appropriate to examine the distribution of unemployment duration. To study the demographic aspects of these questions, we use hazard functions, as before, to derive the distribution of completed spells and the proportion of total unemployment due to spells of given lengths. These are reported in Table 7-8, for the year 1980.

In regard to the distribution of unemployment spells by duration, we find that about 58 per cent of all unemployment spells for teen-agers terminate within the first month, a much larger percentage than for other age groups. By contrast, only 2.4 per cent of spells exceed six months in duration, again a much more favourable circumstance than for other age groups. Notice also the contrast between teen-agers and young adults. The latter group has the smallest proportion of spells ending within one month and the largest proportion of spells exceeding six months, relative to other age groups. Thus, while teen-agers exhibit the least concentration of unemployment, young adults exhibit the greatest concentration among all age groups when both sexes are considered together. Among teen-agers, about 11 per cent of unemployment is due to spells exceeding six months. The comparable figure for young adults (and also for the prime-age group) is 24 per cent. How-

Table 7-8

Characteristics of Completed Unemployment Spells among Age Groups, 1980

	Proportion of spells:		Proportion of unemployment due to spells:		Markov model:	
	Ending within 1 month	Exceeding 6 months	Ending within 1 month	Exceeding 6 months	Proportion of spells exceeding 6 months	Proportion of unemployment due to spells exceeding 6 months
				(Per cent)		
All ages	55.28	4.91	25.01	20.55	3.43	12.28
15 to 19 years	58.22	2.39	30.33	10.83	1.49	6.01
20 to 24 years	52.06	6.20	21.81	24.30	4.38	15.06
25 to 44 years	53.04	6.10	22.45	24.44	4.40	15.10
45 to 64 years	54.60	5.79	23.71	23.49	4.33	14.94

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

ever, even in the case of teen-agers the observed concentration is larger than would be experienced under a Markov process with constant escape rates, 10.8 versus 6.0 per cent for the proportion of unemployment and 2.4 versus 1.5 per cent for the proportion of spells. Thus, whatever the demographic group, the escape rate out of unemployment decreases with the increasing length of such spells; the probability of leaving unemployment is not constant over the entire unemployment period.

Table 7-9

Empirical Estimates of Seasonal, Structural, and Cyclical Effects on the Number of Long-Term Unemployed, by Age-Sex Group, 1972-80

	Dependent variable — Long-term unemployed							
	Men				Women			
	15 to 19 years	20 to 24 years	25 to 44 years	45 years and over	15 to 19 years	20 to 24 years	25 to 44 years	45 years and over
Constant	113,562*	295,034*	386,276*	45,900	110,357*	162,507*	169,385*	119,789*
January	132	-2,879*	-4,527*	-1,757	1,201	-1,649*	-1,645	560
February	1,232	-881	-3,095*	-848	1,736*	-897	-995	1,779*
March	3,584*	232	-1,499	400	3,301*	-205	1,102	3,225*
April	4,168*	3,502*	2,303**	2,956*	2,643*	86	3,003*	2,607*
May	3,552*	3,701*	4,747*	2,767*	2,507*	-50	2,281*	1,547*
June	3,039*	3,921*	3,952*	1,472	2,175*	213	1,705	692
July	1,866*	3,913*	3,189*	1,297	657	-312	1,178	-109
August	1,211	2,072*	3,004*	467	737	-60	-533	943
September	–	–	–	–	–	–	–	–
October	-212	40	-1,607	-973	455	-439	-1,159	468
November	-425	-629	-688	-1,521	117	-673	-1,499	-58
December	-714	-640	-1,484	-2,094**	50	-612	-1,456	-371
1972	-455	-2,454**	-2,422	6,389*	-2,420*	-2,567*	-1,819	-1,221
1973	–	–	–	–	–	–	–	–
1974	2,388*	5,130*	2,263	-1,556	884	3,405*	1,466	1,878**
1975	5,986*	7,466*	6,549*	3,085	1,710	6,773*	4,515*	4,586*
1976	4,236*	10,873*	9,471*	-4,076**	4,862*	8,751*	15,129*	6,996*
1977	7,962*	14,324*	13,283*	-638	6,906*	13,976*	19,206*	9,567*
1978	8,796*	20,020*	21,772*	6,610*	8,737*	15,248*	20,021*	13,126*
1979	8,927*	21,919*	28,421*	480	9,848*	17,553*	27,225*	13,334*
1980	10,114*	27,820*	36,561*	2,040	10,514*	20,101*	28,592*	16,000*
Lagged *EPR*								
∂_0	-135	-1,151*	-1,883*	-1	-943*	-173	-339	-230
∂_1	-159	-969*	-1,522*	-17	-716*	-215	-331	-229
∂_2	-176	-802*	-1,198*	-31	-515*	-247**	-321	-225**
∂_3	-188**	-651*	-909*	-43	-340*	-270*	-308*	-218*
∂_4	-194*	-516*	-657*	-51	-190*	-284*	-291*	-209*
∂_5	-195*	-396*	-440*	-56	-66	-289*	-271*	-197*
∂_6	-190*	-292*	-259	-59	32	-285*	-248**	-182*
∂_7	-180**	-203	-114	-59	104	-272*	-222	-164**
∂_8	-164	-131	-6	-56	151	-250*	-193	-144
∂_9	-142	-73	67	-51	172**	-218*	-161	-121
∂_{10}	-115	-32	104	-42	168*	-177*	-125	-95
∂_{11}	-82	-5	106	-31	138*	-127**	-87	-66
∂_{12}	-44	5	71	-17	82*	-68**	-45	-34
∂_{13}	0	0	0	0	0	0	0	0
Total ($\Sigma\partial_k$)	-1,964*	-5,216*	-6,641*	-514	-1,925*	-2,876*	-2,943*	-2,114*
$\bar{R}^2$	0.6951	0.7819	0.7753	0.7090	0.7311	0.8540	0.9302	0.8452
DW	1.71	1.40	1.02	1.12	1.77	1.20	1.40	1.11

*Significant at the 5 per cent level.
**Significant at the 10 per cent level.
SOURCE Estimates by the authors, based on data supplied by Statistics Canada. See also Table 5-5.

In Chapter 5, we have seen that long-term unemployment is sensitive to structural developments in the economy and to cyclical fluctuations. Using the same methodology, here we look at the issue by specific demographic groups (Table 7-9). The statements given in Chapter 5 are generally corroborated for each group. Only the situation of men aged 45 years and over is not correctly represented by the equation. For all other groups, we notice that long-term unemployment increased for structural reasons during the 1972-80 period. This is certainly a matter of concern where policies have to be designed to fight unemployment. With regard to the influence of the business cycle, the different groups are not affected by the same amplitude: young adults, either men or women, are relatively the most affected, while men and women aged 25 to 44 years are the least sensitive. But maybe more interesting is the timing of the reaction of long-term unemployment to variations in economic conditions. While the effect of changing economic conditions are felt immediately and last a few months for men aged 20 years or more and for women teen-agers, it takes several months for men teen-agers and women aged 20 years or more to be affected either by a deterioration or an improvement in the economic conditions. This also is of some policy relevance.

Labour Force Withdrawals and Their Effects on Concentration of Unemployment

As seen above, the transitions into and out of the labour force play a major role in the determination of unemployment rates for young persons and, compared with other groups, the corresponding transition probabilities are generally higher for youth. The question we now examine is: are youth more prone to discouragement than are other demographic groups?

Chapter 4 shows that the withdrawal rate out of unemployment is much larger than the rate out of employment. This is one indication that the primary explanation for the high rate of labour force withdrawal from unemployment does not lie in personal reasons but rather in discouragement after an unsuccessful job search. When age is taken into consideration, the same pattern holds, but the differential between *un* and *en* is not as large for teen-agers, however, as for the older age groups: although their drop-out rate following a spell of unemployment is relatively high (26 per cent compared with 17 per cent for prime-age adults), their withdrawal rate from employment is even higher relative to adults (8.7 per cent versus 1.5 per cent). As noted above, the higher *en* value largely reflects seasonal factors, and it certainly affects the comparison with other age groups.

Table 7-10

Proportion of Unemployment Spells Ending in Labour Force Withdrawal among Age-Sex Groups, by Duration of Unemployment, 1980

	Length of completed spell					
	1 month or less	1 to 2 months	2 to 3 months	3 to 6 months	More than 6 months	Average
			(Per cent)			
Both sexes						
All ages	41.4	45.7	47.4	49.4	60.5	44.3
15 to 19 years	51.2	55.9	50.8	55.0	54.5	51.5
20 to 24 years	32.7	35.4	42.0	44.6	56.0	37.1
25 to 44 years	37.0	42.2	44.2	47.7	58.7	41.1
45 to 64 years	41.8	44.7	56.7	51.6	70.9	48.0
Men						
All ages	32.9	37.7	39.9	40.8	54.5	36.9
15 to 19 years	48.2	52.6	46.5	51.2	51.5	48.3
20 to 24 years	23.0	27.7	34.3	35.3	47.9	28.6
25 to 44 years	22.5	26.1	35.2	34.2	47.9	29.0
45 to 64 years	30.8	38.7	44.9	46.3	58.6	41.9
Women						
All ages	49.8	54.2	56.4	60.3	66.4	52.0
15 to 19 years	55.0	59.6	56.9	59.4	57.8	55.4
20 to 24 years	43.9	43.5	51.7	56.0	62.1	46.3
25 to 44 years	48.2	56.6	53.1	63.0	68.2	51.7
45 to 64 years	52.5	52.0	72.9	61.2	74.0	55.3

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada, and Table 3-4.

Focusing on the unemployment spells that end in labour force withdrawals – the withdrawal spells – we note from Table 7-10 that they are relatively much more numerous for teen-agers, the contrast being extreme among men. However, the proportion of unemployment spells ending in withdrawal increases with time spent in unemployment for all demographic groups excepting the teen-agers. Part of the difference may lie in the participation by many teen-agers in the labour market for only a few months a year, again reflecting seasonal factors.

If all unemployment spells ended in employment and none in labour force withdrawal (the "indomitable searcher" assumption – see Chapter 3), the resulting unemployment spell for teen-agers would be 4.5 months on average, not much different from the figure for all ages, (Table 7-11). However, since withdrawal spells are more prevalent among teen-agers and women, the increase over average duration of completed spells is much more dramatic in their cases. These groups, in fact, appear with substantially longer durations of unemployment under the "indomitable searcher" assumption.

Table 7-11

Average Duration of Completed Unemployment Spells among Age-Sex Groups, 1980

	Hazard function estimate	"Indomitable searcher" hypothesis*
	(Months)	
Both sexes		
All ages	2.21	4.48
15 to 19 years	1.92	4.50
20 to 24 years	2.39	4.18
25 to 44 years	2.36	4.44
45 to 64 years	2.30	4.74
Men		
All ages	2.38	4.14
15 to 19 years	1.97	4.31
20 to 24 years	2.52	3.80
25 to 44 years	2.72	4.05
45 to 64 years	2.46	4.34
Women		
All ages	2.04	4.94
15 to 19 years	1.86	4.78
20 to 24 years	2.25	4.72
25 to 44 years	2.05	4.91
45 to 64 years	2.13	5.33

*See Chapter 3 for definition.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada, and Table 3-3.

As we say earlier, this is a quite extreme view. Not all withdrawal spells are a result of discouragement. In the case of teen-agers, for example, withdrawals from the labour force may be part of a normal transition back to school. This belief is supported by data in Table 7-12, which show that approximately 57 per cent of all withdrawal spells among teen-agers occur within a month of unemployment. It is unlikely that discouragement could set in so early in the unemployment spell, and it would seem reasonable to allow for a longer search duration for discouragement to manifest.

Using again the methodology developed in Chapter 4, we estimate the number of discouraged workers who give up their job search after a significant period of time spent unemployed. According to our computations, only a maximum of 12 per cent of withdrawal spells may be the expression of discouragement in the case of teen-agers; this is a low proportion compared with around 30 per cent for men aged 20 years and above. But since the proportion of withdrawal spells is much higher for teen-agers, it happens that the contribution of the discouragement phenomenon to the unemployment rate is more pronounced for them in terms of percentage points (Table 7-13).

In Chapter 4, we have attempted to measure the impact of seasonal, trend, and cyclical factors on the discouragement phenomenon in some of its alternative definitions, the more restrictive being the number of persons who were not looking for work because they believed that no work was available (NWA), as recorded monthly in the Labour Force Survey, the more extensive being the number of persons who were available for work but did not look for it (NL). Here, with the same methodology and, in particular, the same basic equation, 4.1, we analyse the sensitivity of the discouragement phenomenon by more specific demographic group, limiting ourselves to the more restrictive definition (provided by the NWA series). Since the figures in each row in Table 7-14 add up to the respective number in Table 4-2, we can consider the results presented as a decomposition of the previous aggregate figures.

While seasonal coefficients for adults reflect the usual pattern in Canada – lower employment level in winter – for youths, they emphasize their especially high availability for work during the summer months: 80 per cent of the addition to the number of discouraged workers in July and August come from those under 25 years of age, other things being equal. All the groups experience a fairly similar pattern regarding the trend. However, the "structural" growth of discouragement impacts more on men (64 per cent) than on women, which is

Table 7-12

Distribution of Unemployment Spells Ending in Labour Force Withdrawal among Age-Sex Groups, 1980

	Length of completed spell				
	1 month or less	1 to 3 months	3 to 5 months	More than 5 months	Total
			(Per cent)		
Both sexes					
All ages	50.7	29.5	10.5	9.2	100.0
15 to 19 years	57.4	30.5	8.0	4.1	100.0
20 to 24 years	44.7	30.2	12.8	12.3	100.0
25 to 44 years	47.1	29.7	11.6	11.7	100.0
45 to 64 years	47.5	29.4	11.6	11.6	100.0
Men					
All ages	45.7	30.5	11.9	11.8	100.0
15 to 19 years	57.2	29.8	8.2	4.7	100.0
20 to 24 years	39.4	31.3	13.6	15.6	100.0
25 to 44 years	36.5	31.6	14.4	17.5	100.0
45 to 64 years	37.8	32.6	14.6	15.0	100.0
Women					
All ages	55.3	28.6	9.2	6.9	100.0
15 to 19 years	57.5	31.4	7.6	3.5	100.0
20 to 24 years	49.7	29.5	11.1	9.7	100.0
25 to 44 years	54.8	28.4	9.4	7.4	100.0
45 to 64 years	56.0	25.8	9.2	9.0	100.0

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada, and Table 4-4.

Table 7-13

Discouraged Jobseekers and Their Impact on the Unemployment Rate, by Age and Sex, 1980*

	15 to 19 years	20 to 24 years	25 to 44 years	45 to 64 years
		(Thousands)		
Number of discouraged jobseekers:				
Men	8 - 20	14 - 25	22 - 38	13 - 26
Women	5 - 17	11 - 24	20 - 46	12 - 25
Both sexes	13 - 37	26 - 49	43 - 87	24 - 49
		(Percentage points)		
Addition to the unemployment rate:				
Men	1.2 - 2.9	1.4 - 2.5	0.7 - 1.2	0.7 - 1.4
Women	0.8 - 2.8	1.3 - 2.8	0.9 - 2.1	1.2 - 2.4
Both sexes	1.0 - 2.8	1.4 - 2.6	0.8 - 1.5	0.8 - 1.7

*In each pair of figures, the first represents the stock of those persons who, at any point in 1980, were no longer in the labour force, having left it after five months or more of job search; the second figure applies to those who left the labour force after three months or more of search. The estimates for men and women may not add up to the total for both sexes because each estimate is calculated independently and is rounded.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada; and Table 4-5.

Table 7-14

Empirical Estimates of Seasonal, Trend and Cyclical Effects on Numbers of Discouraged Workers, by Age and Sex, February 1977 to August 1982

	Dependent variable			
	NWA - Men		NWA - Women	
	15 to 24 years	25 years and over	15 to 24 years	25 years and over
Constant	402,185*	191,936*	219,839*	266,107*
January	6,086*	10,789*	1,896**	8,425*
February	2,454	10.464*	181	3,164*
March	1,654	7,670*	790	6,904*
April	24	5,462*	-18	4,233*
May	-2,156	1,394	-1,092	763
June	-697	-72	431	1,880
July	7,620*	1.442	7,160*	3.495*
August	10,509*	1,005	8,379*	2,243
September	—	—	—	—
October	880	2.534	-44	1,540
November	3,898*	4,041*	1,281	5.824*
December	7,540*	9,749*	3,405*	9,617*
1977	-6,152*	-3,459*	-3,949*	-5,198*
1978	—	—	—	—
1979	7,122*	3,947*	3,879*	2,712**
1980	12,243*	8,388*	6,469*	7,854*
1981	20,319*	10,993*	8,756*	10,820*
1982	22,143*	19,469*	10,775*	12.655*
Lagged *EPR*				
∂_0	-1,559*	-559	-606	-2,575*
∂_1	-1,504*	-643*	-730*	-1,487*
∂_2	-1,367*	-656*	-764*	-663*
∂_3	-1,149*	-598	-708*	-102
∂_4	-848**	-470	-562**	195
∂_5	-465	-270	-326	229
∂_6	0	0	0	0
Total ($\Sigma\partial_k$)	-6,891*	-3,197*	-3,697*	-4,402*
R^2	0.937	0.922	0.917	0.895
$\bar{R}^2$	0.911	0.890	0.882	0.850
DW	1.45	1.43	1.93	1.99
Average value for period	13.226	16.452	10.806	18.387
Elasticity at the mean of EPR (per cent)	-52.102	-19.432	-34.212	-23.941

*Significant at the 5 per cent level.

**Significant at the 10 per cent level.

SOURCE Estimates by the authors, based on data supplied by Statistics Canada. See also Table 4-2.

explainable by the larger share of the latter in employment growth during the recent past. But still, the structural lack of jobs does not spare any demographic group.

The economic conditions do not affect the demographic groups equally. As revealed by the elasticity at the mean of the employment-population ratio, discouragement from job search is the most sensitive for young men: a one per cent decrease in *EPR* results in a 52 per cent increase in the number of discouraged young men (their number would, for example, increase from 13,000 to 20,000 persons). Young women, adult women, and adult men follow in decreasing order of cyclical sensitivity. A decomposition of the aggregate figure for the cyclical impact ($\Sigma \partial_k$) given in Table 4-2, indicates that 38 per cent of the impact of a one percentage point decrease in *EPR* is accounted for by young men, 24 per cent by adult women, 20 per cent by young women, and

18 per cent by adult men. Clearly, youth bear the brunt of economic declines in this regard.

Multiple Spells of Unemployment

A more comprehensive look at the burden of unemployment on individuals must address the issue of repeated spells of unemployment over a given period of time, say, a year. As shown in Table 7-15, there is little difference across age groups but somewhat more across sex groups: fewer than 19 per cent of women experienced more than one spell in 1980 compared with 28 per cent of men. Among age groups, older workers tend to be more prone to repeat spells (28 per cent for persons aged 45 years or more) than young people (22 per cent in the case of those aged 15 to 24 years.

Table 7-15

Distribution of Persons Unemployed at Some Time During the Year, by Number of Spells, 1980

	Number of unemployment spells			
	1	2	3 or more	Total
	(Per cent)			
Both sexes				
All ages	76.1	18.8	5.1	100.0
15 to 24 years	77.8	18.2	4.0	100.0
25 to 44 years	75.4	18.5	6.1	100.0
45 years and over	72.4	21.5	6.1	100.0
Men				
All ages	71.6	22.0	6.4	100.0
15 to 24 years	74.3	20.8	4.8	100.0
25 to 44 years	69.2	22.6	8.2	100.0
45 years and over	68.8	24.3	6.9	100.0
Women				
All ages	81.4	15.0	3.6	100.0
15 to 24 years	81.8	15.1	3.1	100.0
25 to 44 years	82.0	14.1	3.9	100.0
45 years and over	77.6	17.4	5.0	100.0

SOURCE Statistics Canada (1982).

Those results may be somewhat contradictory to *a priori* expectations. But in order to have a correct perspective on this matter, it is of major importance to consider the differences in the average length of time that different demographic groups spend in the labour force. Table 7-16 presents this information. On average in 1980, young people spent about 12 weeks less than prime-age men in the labour force (38.3 weeks compared with 50.0 weeks) and women spent about five weeks less than men (42.0 versus 46.7 weeks). Indeed, the proportion of multiple spells of unemployment among women or young people is slightly lower than for prime-age males, but their total time in the labour force is shorter, which, other things being equal, imposes a higher burden of unemployment on these groups.

Table 7-16

Average Number of Weeks in the Labour Force per Person in the Labour Force at Some Time during the Year, 1980

	All ages	15 to 24 years	25 to 44 years	45 years and over
	(Weeks)			
Both sexes	44.7	38.3	47.4	47.5
Men	46.7	38.9	50.0	48.9
Women	42.0	37.4	43.7	45.2

SOURCE Statistics Canada (1982).

A comparison of the number of persons who experience some unemployment during the year with the number of persons who participated in the labour force at some time during the year brings out this point: nearly 41 per cent of teen-agers with some labour force participation during 1979 were unemployed at some time, compared with only 12 per cent of older participants (Table 7-17). But there is little difference across age-sex groups in the proportion of time spent in unemployment. In particular, teen-agers and older workers unemployed at some time both spent similar amounts of time in unemployment during 1979 (40.6 and 41.6 per cent of their labour force time, respectively). Thus, unemployment is more widely shared among young people. Viewing unemployment time as a share of the total labour force time spent by all participants at some time during the year gives a structure of unemployment rates that is very close to the official unemployment rate. The pattern is fairly similar for men and women, although, among the latter, those with some unemployment during the year generally spend more time unemployed as a proportion of time in the labour force than their male counterparts. This qualifies the widely accepted opinion that women encounter shorter durations of unemployment.

Table 7-17

Comparison of Unemployment Measures, 1979

	Official unemployment rate	Unemployed at some time as a share of labour force participants at some time	Unemployment as a share of labour force time for: All labour force participants at some time	Unemployment as a share of labour force time for: Unemployed at some time
		(Per cent)		
Both sexes				
All ages	7.5	21.5	6.8	36.9
15 to 19	16.1	40.8	15.6	40.6
20 to 24	10.8	31.2	9.8	34.4
25 to 44	6.0	17.7	5.3	34.5
45 to 64	4.7	12.1	4.4	41.6
Men				
All ages	6.6	19.5	6.0	35.4
15 to 19	16.4	40.2	15.4	39.7
20 to 24	11.1	31.9	10.4	34.4
25 to 44	4.9	15.6	4.6	32.2
45 to 64	4.2	10.9	3.9	40.1
Women				
All ages	8.8	24.0	7.4	38.8
15 to 19	15.8	41.6	15.8	41.5
20 to 24	10.4	30.5	9.1	34.8
25 to 44	7.8	20.7	6.2	37.6
45 to 64	5.6	14.2	5.0	44.0

SOURCE Statistics Canada, The Labour Force, cat. no. 71-001, December 1979, and special tabulations from Statistics Canada's Annual Work Patterns Survey, 1980.

The Employment Experience by Demographic Group

Average Duration and Distribution of Employment

Instability of jobholding among youths has been a major theme in the turnover literature. It has also been argued that such instability is worker-related rather than job-related.[4] Each month, a portion of employment spells terminate in transition to either unemployment or out of the labour force. On average, about 4 per cent of employment spells actually terminate during a month. The remainder are in-progress spells. Comparisons of "in-progress" employment tenure among different age groups is of limited use, since most of the difference may simply be due to the fact that teen-agers, on average, have much shorter experience in the labour force than do older workers. Under steady state conditions, a measure of completed spells is equivalent to double the duration of "in-progress" spells. But, the steady state assumption, which may be appropriate for prime-age groups, is inappropriate for youths in general and for teen-agers in particular. The future participation in the labour force by these groups is expected to be much longer than their past experience, and this violates the steady state assumption, (Table 7-18).

Estimates based on terminated spells also present similar difficulties. As noted above, on average, only about 4 per cent of employment spells actually terminate during a month, although the figure is about 12 per cent for teen-agers. Long-duration employment spells have much less chance of terminating during a given month than do shorter spells. Consequently, the terminated-spell measure is likely to be biased downward.

In view of the inherent limitations of the data on the average duration of employment for the purpose of comparison across demographic groups, one fruitful use of the data may be to examine the distribution of employment durations for each group, as is provided in Table 7-19. The distribution of terminated spells in the top part of the table shows that half of all employment spells for teen-agers last three months or less and only 19 per cent exceed one year in duration. For young adults, about a third of spells are up to three months in duration and about a third exceed one year. Surprisingly, even for the prime-age group,

Table 7-18

Duration of Employment Spells, 1980

	In-progress spells	Completed spells*	Terminated spells†		
			All	Ending in unemployment	Ending in NLF
			(Years)		
All ages					
Both sexes	7.4	14.8	2.9	2.3	3.2
Men	8.7	17.5	3.2	2.6	3.7
Women	5.6	11.1	2.7	2.0	3.0
15 to 19 years					
Both sexes	1.1		0.7	0.5	0.7
Men	1.2		0.6	0.6	0.7
Women	1.0		0.7	0.5	0.8
20 to 24 years					
Both sexes	2.1		1.2	1.1	1.2
Men	2.1		1.1	1.2	1.1
Women	2.0		1.2	1.1	1.3
25 to 44 years					
Both sexes	5.9		2.8	2.8	2.8
Men	6.6		3.0	3.0	2.9
Women	4.9		2.6	2.3	2.8
45 to 64 years					
Both sexes	14.0		7.7	5.4	8.8
Men	16.3		9.2	6.3	11.3
Women	10.3		6.7	4.3	7.4

*This measure of completed spells is obtained by doubling the in-progress spell measure. Since this procedure requires the steady state assumption, it is only applied in the aggregate case (see text for explanation).

†This measure is obtained directly from monthly data on completed employment spells (i.e., EN and EU spells) distributed by employment duration.

SOURCE: Estimates by the authors, based on gross flow data provided by Statistics Canada.

roughly a quarter of all spells last three months or less, and about 47 per cent exceed one year in length.

For demographic reasons already mentioned, long spells do not contribute as much to employment among teen-agers and young adults as they do for older age groups. Nevertheless, even among teen-agers, while only 19 per cent of terminated spells are longer than one year, they contribute a disproportionate 68 per cent of teen-age employment attributable to terminated spells. For young adults, approximately 32 per cent of these spells exceed one year in duration and account for some 82 per cent of their employment attributable to terminated spells. The contribution of long spells is even higher if in-progress spell data are examined. About 35 per cent of in-progress spells experienced by teen-agers are longer than one year, and they contribute close to 78 per cent of teen-age employment attributable to in-progress spells. For young adults, the proportions are 59 and 92 per cent, respectively.

While this analysis is instructive, a comparison of the figures in the top and bottom panels of Table 7-19 reveals the degree of concentration of short spells in terminating spells.

To gain an understanding of the true measure of a completed spell of employment, it is evident that a much longer period of observation is needed. Hence the rationale for our use of the retention rate analysis in Chapter 6. As shown there, youths experiment with several jobs before settling into a permanent job. But, even for the cohort aged 20 to 24 years approximately one-third of persons holding a current job for five years are expected to continue on for additional 15 years. Thus, even among young adults, employment stability is a feature of non-negligible importance.

Short-Duration Employment Spells

Because of the strong demographic effect on the length of employment duration, one approach in comparing the behaviour of different age cohorts is to examine the characteristics of short employment spells. These data, drawn from Statistics Canada's Annual Work Pattern Survey, are provided in Table

Table 7-19

Cumulative Distribution of Terminated and In-Progress Employment Spells and of Total Employment among Age Groups, by Spell Duration, 1980

	Age group									
	All ages		15 to 19 years		20 to 24 years		25 to 44 years		45 to 64 years	
	Share of spells	Share of employment	Share of spells	Share of employment	Share of spells	Share of employment	Share of spells	Share of employment	Share of spells	Share of employment
					(Per cent)					
Duration of terminated spells:										
Up to 3 months	33.0	1.3	50.6	9.1	32.7	3.4	25.2	1.0	19.9	0.3
Up to 6 months	49.0	3.3	68.2	18.4	54.0	9.8	40.5	3.0	29.4	0.8
Up to 12 months	61.1	6.2	80.6	31.5	67.6	18.1	53.0	6.2	39.2	1.7
Up to 3 years	77.9	16.9	95.7	71.6	87.8	50.0	71.5	18.7	53.0	5.1
Up to 5 years	85.0	26.6	99.2	91.4	96.0	77.6	80.9	32.2	60.5	9.0
Up to 10 years	92.1	43.8	100.0	100.0	99.6	97.0	92.9	62.6	72.7	20.5
Up to 15 years	95.3	57.0			100.0	100.0	97.7	83.6	80.8	33.4
Up to 20 years	96.8	69.5					99.4	93.9	85.7	44.5
More than 20 years	100.0	100.0					100.0	100.0	100.0	100.0
Duration of in-progress spells:										
Up to 3 months	8.8	0.2	28.5	3.2	14.9	0.9	6.6	0.1	3.2	0.0
Up to 6 months	15.3	0.5	45.0	8.7	25.6	2.8	12.2	0.5	5.9	0.1
Up to 12 months	24.1	1.4	64.5	21.7	40.7	8.2	20.2	1.5	9.4	0.3
Up to 3 years	43.8	6.6	92.0	67.4	73.9	39.2	39.8	7.9	19.5	1.7
Up to 5 years	56.3	13.4	97.9	88.4	90.8	71.4	54.6	17.6	28.0	4.1
Up to 10 years	74.7	31.3	100.0	100.0	99.7	98.4	79.5	48.0	45.7	13.3
Up to 15 years	84.6	47.9			100.0	100.0	91.9	73.5	59.9	25.8
Up to 20 years	90.1	60.8					97.1	88.5	70.7	39.1
More than 20 years	100.0	100.0					100.0	100.0	100.0	100.0

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada

7-20 and represent the employment spells begun and completed during the year 1979. They exclude, by definition, spells that are in progress at the beginning or at the end of the year. Four spell types are possible, depending on the labour market states that precede and follow the employment spell, namely UEU, UEN, NEU and NEN, as designated in Chapter 2.

All age cohorts exhibit the preponderance of employment spells that begin and end in labour force withdrawals, NEN. However, this concentration is greater for teen-agers (and for persons aged 45 to 64 years, primarily because of the behaviour of older women). The seasonal nature of teen-age employment experience is probably the major explanation for the pattern just described. A large proportion of teen-agers simply come into the labour force during the summer months and find some employment that terminates with their return to school (that is, out of the labour force). The predominance of NEN flows does not support the kind of unstable jobholding patterns that some turnover economists have emphasized. It should also be noted that the employment experience of young adults is quite distinct from that for teen-agers, and closer to that for prime-age participants, when short-duration employment spells are examined.

Table 7-21 helps in summarizing the picture of employment patterns among the demographic groups presented in this section. It looks at the number of weeks of employment for persons with some employment in 1980. Quite striking is the difference in behaviour between youths and adults. Among the former,[5] only 40 per cent held jobs for the entire year while as many as 20 per cent worked only three months or less – presumably most of them during the summer. On the other hand, almost three-quarters of adults spent the whole year employed, and only one in 20 held a job for three months or less. These clear-cut patterns are similarly experienced by men and women, though attenuated for women.

The foregoing analysis leads to three general conclusions. First, extreme caution is advisable in comparing employment durations among age groups who have been in the labour force for very different lengths of time. The most useful approach for this purpose is that of retention rate analysis. Second, even for the teen-age population, very brief spells of employment, while quite numerous, are relatively unimportant compared with the total volume of employment for this group. Third, the instability of youth employment can be largely explained by the seasonal nature of labour market participation by a large number of teen-agers.

Conclusion

This chapter examines the employment, unemployment, and not-in-the labour-force status of various demographic groups in the Canadian labour market. The high rates of unemployment among Canadian youth are a cause for concern. The turnover literature argues that youth unemployment rates are high because youth exhibit unstable jobholding patterns by leaving, at high rates, jobs that are less desirable in order to look for better employment. This pattern generates high incidences of unemployment. Youth do not, however, remain unemployed for long and this in turn, appears to suggest that jobfinding is easy for them.

Our findings paint a picture of a very active youth labour market with large movements between its various states. Higher rates of unemployment for youth are found to be closely associated with higher incidences of unemployment. Youth also exhibit much higher rates of job turnover than do other age groups. Their average durations of unemployment are also shorter. However, in view of additional findings that we present, our interpretation of these observations differs markedly from those of the turnover analysts and suggests that, in designing policies for the youth labour market, the turnover model needs to be supplemented with other considerations.

First, brief spells of unemployment of the variety that turnover analysts have emphasized, although very numerous, explain only a minor part of total unemployment. Long spells of unemployment, which are symptomatic of jobfinding difficulties, constitute a disproportionately large part of unemployment. Second, additional evidence of jobfinding difficulties comes from discouraged workers. Youths suffer disproportionately from discouragement. When this factor is considered, their average durations of unemployment also rise considerably. Moreover, multiple spells are somewhat more frequent among youth, if we take into account the concentration of their labour force participation over only a part of the year. More importantly, when total unemployment time is considered, regardless of the number of spells in which it occurs, youths spend a larger fraction of their labour force experience in unemployment. There is, therefore, not only a concentration of unemployment in long spells but also a concentration of unemployment among youths. Third, even though employment duration data by age have a downward bias for cohorts who have limited exposure to the labour force, we find that brief spells of employment, although very numerous, account for only a small fraction of youth employment. A significant proportion of jobs held by young adults are likely to last

Table 7-20

Distribution of Short-Term Employment Spells among Age-Sex Groups by Type of Spell, 1979*

	Spell type				
	UEU	UEN	NEU	NEN	All spells
	(Per cent)				
Both sexes					
All ages	14.3	12.4	9.8	63.5	100.0
15 to 19 years	9.0	13.5	9.7	67.8	100.0
20 to 24 years	17.7	16.7	12.4	53.3	100.0
25 to 44 years	18.3	11.6	10.6	59.5	100.0
45 to 64 years	15.2	7.9	7.5	69.4	100.0
Men					
All ages	18.7	13.4	11.2	56.6	100.0
15 to 19 years	10.7	13.4	9.9	65.9	100.0
20 to 24 years	22.7	16.5	13.4	47.3	100.0
25 to 44 years	27.9	13.6	13.4	44.9	100.0
45 to 64 years	21.7	10.8	10.4	57.5	100.0
Women					
All ages	9.8	11.4	8.4	70.3	100.0
15 to 19 years	7.0	13.7	9.2	70.1	100.0
20 to 24 years	11.0	16.9	11.0	61.0	100.0
25 to 44 years	11.8	10.2	8.6	69.4	100.0
45 to 64 years	10.2	5.5	5.1	79.2	100.0

*See Chapter 2 for definitions of spell types. These employment spells were begun and completed during the calendar year.

SOURCE Special tabulations from Statistics Canada's Annual Work Patterns Survey, 1980. See also Table 6-12.

Table 7-21

Persons Employed at Some Time During the Year, 1980

	Number of weeks employed						
	1 to 13	14 to 26	27 to 39	40 to 51	52	Total	Total number
	(Per cent)						
Both sexes							
All ages	9.3	9.2	9.2	9.1	63.2	100.0	12,736
15 to 24 years	20.2	16.0	13.0	10.5	40.4	100.0	3,668
25 to 44 years	5.0	6.7	8.2	9.7	70.4	100.0	5,733
45 years and over	4.8	6.0	6.9	6.6	75.7	100.0	3,335
Men							
All ages	6.9	7.5	8.6	9.2	67.8	100.0	7,415
15 to 24 years	19.0	16.0	13.4	11.6	40.0	100.0	1,958
25 to 44 years	2.2	4.2	7.0	9.6	77.0	100.0	3,332
45 years and over	3.1	4.9	6.5	6.5	79.0	100.0	2,125
Women							
All ages	12.7	11.5	10.2	9.0	56.7	100.0	5,322
15 to 24 years	21.5	15.9	12.4	9.2	40.9	100.0	1,710
25 to 44 years	9.0	10.1	9.8	9.9	61.3	100.0	2,401
45 years and over	7.8	7.9	7.6	6.8	69.8	100.0	1,210

SOURCE Statistics Canada (1982).

several years when eventually completed. In large part, the job turnover that does occur is explained by the normal pattern among young adults of settling into permanent jobs and among teen-agers of finding seasonal work during school vacation.

Another major finding of this chapter is that the labour market experiences of teen-agers and young adults are very different. Teen-agers separate from employment and unemployment at much higher rates and leave the labour force in much greater proportions. Labour force exit rates for young adults, on the other hand, are the lowest among all demographic cohorts. Upon re-entry into the labour force, the experience of young adults is far less favourable than is the case for teen-agers, as the former more often try to find a permanent position in the labour market. Teen-agers and young adults also differ markedly in their incidences of employment and unemployment and their average durations in these states. As a result of these differences, the higher unemployment rate for teen-agers compared with young adults (16.3 versus 11.1 per cent in 1980) needs to be interpreted with caution.

In many ways, young adults aged 20 to 24 years encounter more severe problems in the labour market than do other age cohorts. As they settle down to more permanent attachments in the labour market, their labour force withdrawal rates diminish substantially, and are even lower than those of the prime-age group. Their average durations of unemployment, however, is not very significantly different from that of other adult cohorts, while their flows into unemployment are slightly greater. Their concentration in long-term unemployment is significantly higher than for teen-agers and quite similar to that facing prime-age adults. Among young adults, women experience relatively poorer labour market prospects; when employment conditions worsen, they experience greater job retrenchment. The non-returning students among young adults also have very significant labour market difficulties. These various specific groups deserve careful attention by policy makers.

8 Regional Differences in Labour Market Experience

The broad outlines of the differences in Canadian regional labour markets[1] are well known to interested observers. Unemployment rates are persistently higher in the Atlantic region and in Quebec, whereas the Prairie provinces have the lowest rates. What light does the dynamic approach to labour market analysis shed on these differences by region? In particular, which flows in the labour market are responsible for the observed differences in the unemployment rate? What is the nature of the concentration of unemployment by region? How would the unemployment rate differentials look if the discouragement factors were incorporated? What is the pattern of employment tenures across the regions? These are some of the questions that we address in this chapter.

The large and persistent differences among regions point to structural causes. For example, some of the differences can be explained by variations in the occupational and industrial mix in the regions. The more fundamental question as to why these differences have been maintained over long periods of time and have not been removed through migration of labour and/or capital is beyond the scope of this study. For the moment, we consider these regional markets as significantly different and relatively isolated from each other.

We first present the flow picture of the regional labour markets. Then, we ask whether the unemployment rate differentials among regions are well explained by differences in the frequency with which labour force participants become unemployed. Different dimensions of this issue are examined. We next document the seasonality issue with respect to different employment, unemployment, and not-in-the-labour-force patterns among regions. The usefulness of the concept of average duration of unemployment for explaining regional differences in unemployment is questioned and, going beyond that concept, we analyse the distributions of unemployment duration. The unemployment rate measure itself is also questioned, since the addition of the discouragement factor changes the actual differentials in this rate across regions. Then we examine the employment side of the regional markets at length, and finally conclude the chapter.

Regional Labour Market Flows

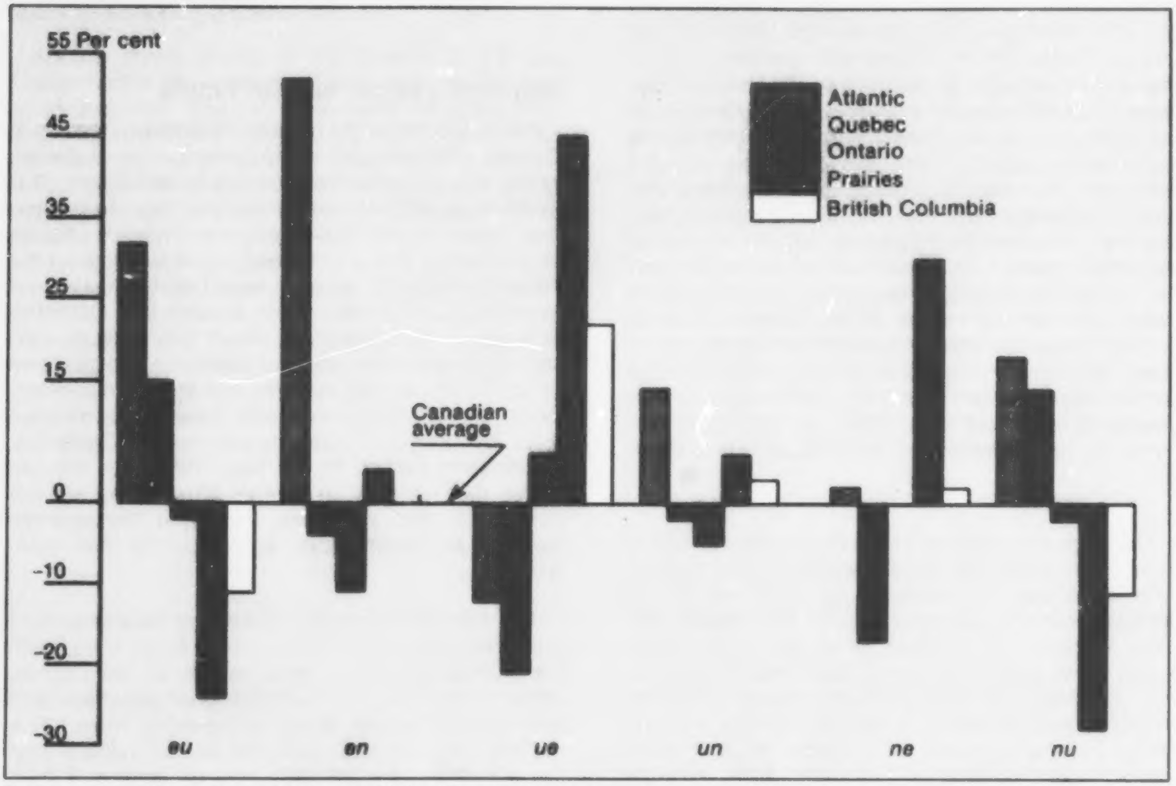
Some of the specific differences between regions in Canada – in terms of unemployment rates or participation rates, for example – are quite well known. It is useful to go beyond those striking features to analyse their determinants. This is why we start this chapter by presenting the gross flows in the regional labour markets. As it can be seen from Chart 8-1, regional flows are widely dispersed around the Canadian average, which means that the determinants of, say, unemployment rates or participation rates are also very different among regions. It is therefore interesting to pinpoint the salient features that emerge from a reading of transition rates, as presented in Table 8-1. Those data pertain to the year 1980, but we can assert that, at least in relative terms, they are not peculiar to that year and, thus, that the revealed patterns are much more region-specific than time-specific.

The Atlantic region is marked by very important movements in and out of the labour force. It has both the highest withdrawal rates[2] among all the regions, either from employment or from unemployment, and the highest overall entry or re-entry rates. This pattern holds for both men and women (except that the overall entry or re-entry rate for women is third among the five regions, but differences in this regard are fairly marginal). These data reflect the seasonal nature of a significant proportion of employment in the region. It is further revealing that the performance of the Atlantic region is relatively better, compared with the Canadian average, at finding a job from the not-in-the labour force status, *ne*, than from the unemployment status, *ue*. This latter fact may mean that seasonal jobless persons are not looking actively for work, since they know that they are likely to be recalled when the off-season is over. Such a pattern also stresses the lack of replacement job opportunities between seasons.

In Quebec, the most salient feature is the particularly low transition to employment from both unemployment and not in the labour force. Fewer than 19 per cent of unemployed Quebecers found a job in an average month during 1980; this is well below the Canadian average of 24 per cent. Men and women experience the same situation in this province. But this does not tend to push up the withdrawal rate

Chart 8-1

Regional Differentials in Labour Market Transition Rates from the Canadian Average, 1980



SOURCE Gross flow data provided by Statistics Canada. See Table 8-1.

from unemployment as we might expect – it is in fact a bit below the Canadian average. Since this province also experiences a relatively high probability of separation from employment, *eu*, we find here an explanation for its high unemployment rate.

The flow pattern in Ontario is fairly close to the one in Quebec in the sense that movements in and out of the labour force are limited (in the case of Ontario, they are the lowest among the five regions). But in terms of the transition rates between employment and unemployment, both *eu* and *ue*, and for both men and women, the province is close to the Canadian average.[3] The Ontario labour market appears to be active with a strong attachment to the labour force on the part of its working-age population.

In the Prairies, we observe the highest rates of hiring either from unemployment or from not in the labour force, and at the same time, the lowest separation rate, *eu*. This very favourable situation holds for both men and women. A positive effect of such a very active, growing labour market is that new entrants or re-entrants into the labour force enjoy a very high probability (70 per cent) of finding a job, rather than facing unemployment. It should also be noted that women experience a high rate of withdrawal from the labour force (second only to the Atlantic region) from both employment and unemployment. In the context of the Prairies, it may be a secondary effect of the relatively easy access to jobs in 1980.

The British Columbia situation settles in between Ontario those for Ontario and the Prairies, for both men and women, with a low transition rate from employment to unemployment coupled with a higher than average rate of hiring from unemployment and

Table 8-1

Labour Market Transition Rates among Regions, 1980

	Labour market flow						
	eu	*en*	*ue*	*un*	*ne*	*nu*	*pne*
	(Per cent)						
Both sexes							
Canada	1.55	2.57	23.97	19.03	3.79	2.93	56.40
Atlantic	2.05	3.90	21.09	21.60	3.88	3.45	52.93
Quebec	1.79	2.47	18.88	18.58	3.15	3.35	48.46
Ontario	1.52	2.30	25.35	18.09	3.78	2.87	56.84
Prairies	1.18	2.68	34.79	20.24	4.91	2.10	70.04
British Columbia	1.38	2.56	29.29	19.56	3.88	2.61	59.78
Men							
Canada	1.63	1.80	25.37	14.83	5.36	4.38	55.03
Atlantic	2.27	3.12	22.39	18.07	5.65	5.29	51.65
Quebec	1.85	1.92	20.10	14.86	5.07	5.44	48.24
Ontario	1.61	1.53	27.15	13.29	4.95	3.96	55.56
Prairies	1.24	1.69	36.98	14.77	6.70	3.00	69.07
British Columbia	1.39	1.67	31.61	15.82	5.33	3.67	59.22
Women							
Canada	1.42	3.73	22.27	24.15	3.13	2.32	57.43
Atlantic	1.69	5.17	19.18	26.79	3.00	2.54	54.15
Quebec	1.68	3.36	17.21	23.67	2.36	2.49	48.66
Ontario	1.39	3.41	23.34	23.42	3.29	2.41	57.72
Prairies	1.09	4.20	32.33	26.42	4.22	1.75	70.69
British Columbia	1.36	3.95	26.98	23.29	3.26	2.16	60.15

SOURCE Gross flow data provided by Statistics Canada, and Table 2-3

not in the labour force. Also, transitions in and out of the labour force are larger than in Ontario but lower than in the Prairies.

These flows paint a picture of substantial month-to-month movement in regional labour markets and are consistent with *a priori* information about Canada's regions. In general, better-placed labour markets exhibit lower flow rates out of employment and higher rates into employment from both unemployment and out of the labour force.

Regional Labour Market Flows and Unemployment

Explaining Unemployment Rate Differentials

Now that we have a flow picture of the various regional labour markets, it is interesting to synthesize it by examining how it explains the unemployment rate differentials among regions. The steady state methodology developed in Chapter 2 may again be used for this exercise. Using Ontario as the base for calculating the interregional differentials in unemployment rates, we can decompose these differentials into the contribution of individual flows. The results are presented in Table 8-2.

Two groups of regions on each side of Ontario are markedly delimited: Quebec and the Atlantic provinces on the one hand with unemployment rates higher than Ontario's, and British Columbia and the Prairies on the other hand with lower unemployment rates. In the first case, the flows out of employment *eu* and *en*, and the flow into employment from unemployment *ue*, are almost totally responsible for the higher unemployment rates observed. For the Atlantic provinces, *eu* and *en* flows dominate the *ue* flow, while the reverse is true in Quebec. This outcome is consistent with the characteristics of the labour market movements in the two regions described above.

In the second case, British Columbia and the Prairies have lower unemployment rates than Ontario, thanks to the lower incidence of job separations leading to unemployment, *eu*. But even more important are the significantly higher level of hirings, *ue*, and the better probability of success in finding a job upon entry or re-entry into the labour force, *pne*. Thus the relatively buoyant regional labour markets in Canada are characterized primarily by the ease of jobfinding secondarily by the nature of job separations.

Table 8-2

Contribution of Labour Market Flows to Unemployment Rate Differences between Ontario and Other Regions, 1980

	Labour market flow					Total difference
	eu	*en*	*ue*	*un*	*pne*	
	(Percentage points)					
Both sexes						
Atlantic	1.30	1.77	0.97	-0.44	0.47	4.08
Quebec	0.72	0.21	1.51	-0.06	0.89	3.31
Prairies	-0.73	0.30	-1.08	-0.16	-0.99	-2.70
British Columbia	-0.32	0.25	-0.58	-0.13	-0.25	-1.04
Men						
Atlantic	1.67	1.87	1.10	-0.59	0.37	4.42
Quebec	0.66	0.52	1.61	-0.19	0.58	3.22
Prairies	-0.82	0.13	-1.09	-0.10	-0.69	-2.62
British Columbia	-0.52	0.14	-0.61	-0.20	-0.21	-1.41
Women						
Atlantic	0.71	1.82	0.95	-0.43	0.56	3.63
Quebec	0.74	-0.06	1.48	-0.03	1.30	3.47
Prairies	-0.61	0.57	-1.08	-0.23	-1.39	-2.78
British Columbia	-0.07	0.49	-0.60	0.01	-0.29	-0.45

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Table 8-3

Unemployment Rate and Its Components among Regions, 1980

	Unemployment rate		Incidence of unemployment	Duration of unemployment
	Actual	Calculated		
	(Per cent)			
Both sexes				
Atlantic	11.2	10.67	4.56	2.34
Quebec	9.9	9.90	3.71	2.67
Ontario	6.9	6.59	2.86	2.30
Prairies	4.3	3.89	2.14	1.82
British Columbia	6.8	5.55	2.71	2.05
Men				
Atlantic	10.9	10.64	4.31	2.47
Quebec	9.3	9.44	3.30	2.86
Ontario	6.2	6.22	2.51	2.47
Prairies	3.8	3.60	1.86	1.93
British Columbia	5.7	4.81	2.28	2.11
Women				
Atlantic	11.7	10.76	4.94	2.18
Quebec	10.7	10.60	4.33	2.45
Ontario	7.7	7.13	3.34	2.14
Prairies	5.0	4.35	2.56	1.70
British Columbia	8.5	6.68	3.36	1.99

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

It is noteworthy that these results are only marginally different with regard to the data disaggregated by sex.

Incidence and Duration of Unemployment

The patterns of flows described have also been used to derive the incidence and duration of unemployment for each of the five regions again on the basis of the by now familiar steady state assumption described in Chapter 2. These are reported in Table 8-3. Somewhat contrary to what we observed with the age structure (in the previous chapter), on an interregional basis, higher unemployment rates are associated with both higher frequency and greater duration of unemployment. There is just one exception to this rule: the duration of unemployment in Quebec is much higher than that in the Atlantic region, whereas its incidence is slightly lower. We have already noted jobfinding difficulties in Quebec as mirrored in the low transition rates to employment, *ue* and *ne*. The somewhat lower average duration for the Atlantic region may appear as a surprise, but is largely explained by the much larger flows into and out of the labour force, associated with the seasonality factor in this region compared with Quebec.

Table 8-4

Unemployment Rate Differential among Regions Compared with Ontario, 1980

	Unemployment rate differential with Ontario	Proportion of differential due to a difference in:	
		Incidence	Duration
	(Percentage points)	(Per cent)	
Both sexes			
Atlantic	4.08	96.4	3.6
Quebec	3.31	63.5	36.5
Prairies	-2.70	55.3	44.7
British Columbia	-1.04	31.9	68.1
Men			
Atlantic	4.42	100.0	—
Quebec	3.22	65.0	35.0
Prairies	-2.62	54.8	45.2
British Columbia	-1.41	37.9	62.1
Women			
Atlantic	3.63	95.4	4.6
Quebec	3.47	65.6	34.4
Prairies	-2.78	53.6	46.4
British Columbia	-0.45	-9.0	109.0

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

For a closer look at this issue, let us take again the province of Ontario as the base, and consider the incidence and duration components of the unemployment rate differential among regions, compared with Ontario, one at a time. The differentials are presented in Table 8-4. Men in Atlantic Canada have a much greater likelihood of becoming unemployed than men in Ontario, which accounts entirely for the unemployment rate differential between them. For men in Quebec in comparison, two-thirds of the unemployment rate differential with men in Ontario is explained by greater incidences and one-third by longer durations of unemployment. Incidence and duration make almost equal contributions to the lower unemployment rate for men in the Prairies. British Columbia is the one region where the impact of the duration of unemployment dominates, but it should be noted that the unemployment rate differential is fairly small. These results for men are closely parallel to the experiences of women as well. Viewed in this light, interregional variations in unemployment rates would appear in general to be more closely related to variations in incidence rather than in average duration of unemployment.

Seasonality and Regional Labour Markets

Since we propose seasonality as a plausible explanation for specific labour market behaviour observed in the previous sections, it seems important to briefly take stock of this question.

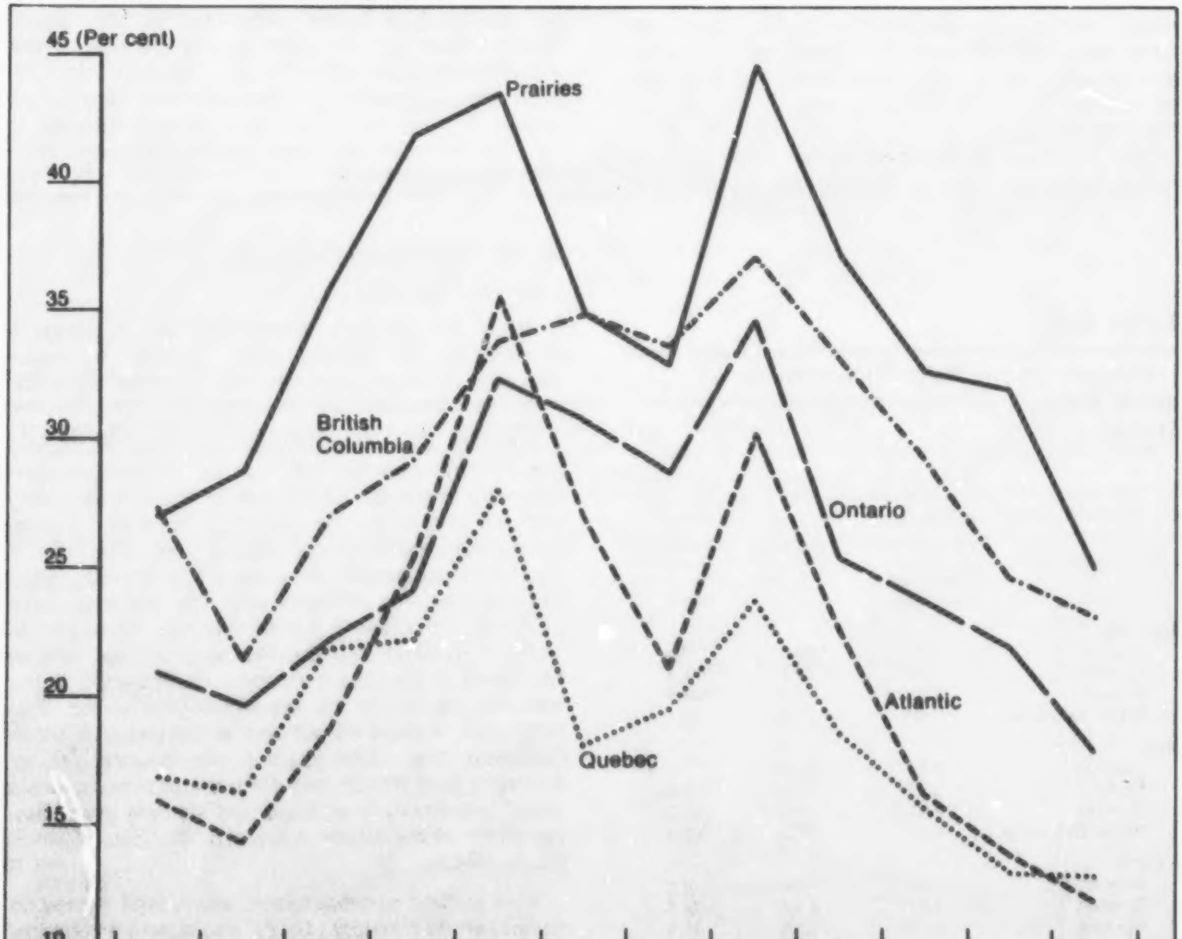
Statistics Canada's Annual Work Pattern Survey gives information on the number of persons participating in the labour market at some time during the year and on the number of persons with continuous employment throughout the year. The ratio of these two populations provides a first approximation to the importance of seasonality. The first three rows of Table 8-5 present the information by region in 1980. In Ontario and the Prairie provinces, almost two-thirds of persons with some participation in the labour force had a job the whole year round. This proportion is about 60 per cent in Quebec and British Columbia, and much lower in the Atlantic region, averaging only 52 per cent for the four provinces. No doubt seasonality is an important element in explaining much of the labour market differences between the provinces.

As a second approximation, we extend a method developed by Beaudry (1978), and isolate a seasonal component in the employment-population ratio.[4] The middle rows of Table 8-5 present estimates of the impact of seasonality on employment by region. It is clear that a significant seasonal effect is present in all provinces.[5] However, as suggested in the previous paragraph, seasonality affects employment much more in the Atlantic provinces and Quebec than in Ontario or western Canada. Thus, in the two regions with the lowest proportion of their population employed, the seasonal employment population ratio is highest – 4.5 per cent in the Atlantic provinces and 3.2 per cent in Quebec. We would have expected the seasonal effect to be somewhat higher in British Columbia compared with Ontario; this is not borne out by our data pertaining to the year 1980 only.

Is this seasonal employment pattern fully reflected in the unemployment rate? Using the same method as above, the answer from the lower rows is no. Although the seasonal unemployment rates present the same ranking among the regions (except for British Columbia, which takes a position more in line with our expectations), the average annual seasonal effect on the number of persons unemployed is much lower than the same effect on the number employed (compare rows 6 and 9). This asymmetry is largely due to persons withdrawing from the labour force

Chart 8-2

Monthly Probability of Labour Market Transition from Unemployment to Employment among Regions, 1980



SOURCE Gross flow data provided by Statistics Canada.

Table 8-5

Impact of Seasonal Factors on Regional Labour Markets, 1980

	Atlantic	Quebec	Ontario	Prairies	British Columbia
(1) Number of persons participating in the labour force at some time during the year (thousands)	1,106	3,383	4,863	2,262	1,453
(2) Number of persons employed all year (thousands)	575	2,020	3,140	1,439	872
(3) Proportion of population employed all year (per cent)	52.0	59.7	64.6	63.6	60.0
(4) EPR (per cent)	49.9	55.0	62.2	64.2	59.4
(5) Seasonal variation in EPR (percentage points)	4.5	3.2	2.5	2.4	2.1
(6) Impact on the number of persons employed (thousands)	74	155	163	71	42
(7) Unemployment rate (per cent)	11.2	9.9	6.9	4.3	6.8
(8) Seasonal variation in unemployment rate (percentage points)	2.3	1.3	1.0	0.9	1.3
(9) Impact on the number of persons unemployed (thousands)	21	38	44	18	17

SOURCE Estimates by the authors, based on data provided by Statistics Canada, and Statistics Canada (1982).

during the interim jobless period. For adults with season-specific skills, continued job search is likely to be fruitless. The same is true for young people who enter the labour market during the summer months and are still attached to school the rest of the year.

The relative position of various regions is brought out in Chart 8-2, which depicts the probability of moving from unemployment to employment, *ue* each month in 1980. These data attest to the highly seasonal nature of the jobfinding process. The peaks in the curves are certainly influenced by the labour market behaviour of younger workers. The key point to note is the extremely low probabilities of finding jobs in nonpeak months in the Atlantic region. Quebec, as well, experiences drastic reductions in hiring activity in off-seasons. While seasonality is a strong element in other regions as well, the decline in hirings in the off-season is not as marked.

In short, a significant part of regional employment and unemployment rate differentials can be traced to seasonal factors.

Regional Distribution of Unemployment Duration

So far we have explored the impact of flows in the labour market on the rate of unemployment and the average duration of unemployment as one of its components. We have earlier pointed out the importance of the distribution of unemployment spells; we now turn to this aspect for the Canadian regions. Table 8-6 presents data related to the concept of completed spells of unemployment, by region and

Table 8-6

Average Duration of Completed Unemployment Spells among Regions, and Proportion of Unemployment Spells ending in Labour Force Withdrawal among Regions, 1980

	Hazard function estimate	"Indomitable searcher" hypothesis*	Proportion of spells ending in withdrawal
	(Months)		(Per cent)
Atlantic			
All	2.23	5.04	51.72
Men	2.36	4.71	45.51
Women	2.07	5.56	59.72
Quebec			
All	2.54	5.32	49.97
Men	2.74	4.99	42.69
Women	2.30	5.78	58.40
Ontario			
All	2.21	4.27	41.50
Men	2.38	3.87	32.19
Women	2.05	4.87	51.11
Prairies			
All	1.78	3.36	37.30
Men	1.93	3.03	28.71
Women	1.62	3.77	45.41
British Columbia			
All	1.89	3.74	39.25
Men	1.94	3.33	31.68
Women	1.85	4.22	46.78

*See Chapter 3 for definition.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Table 8-7

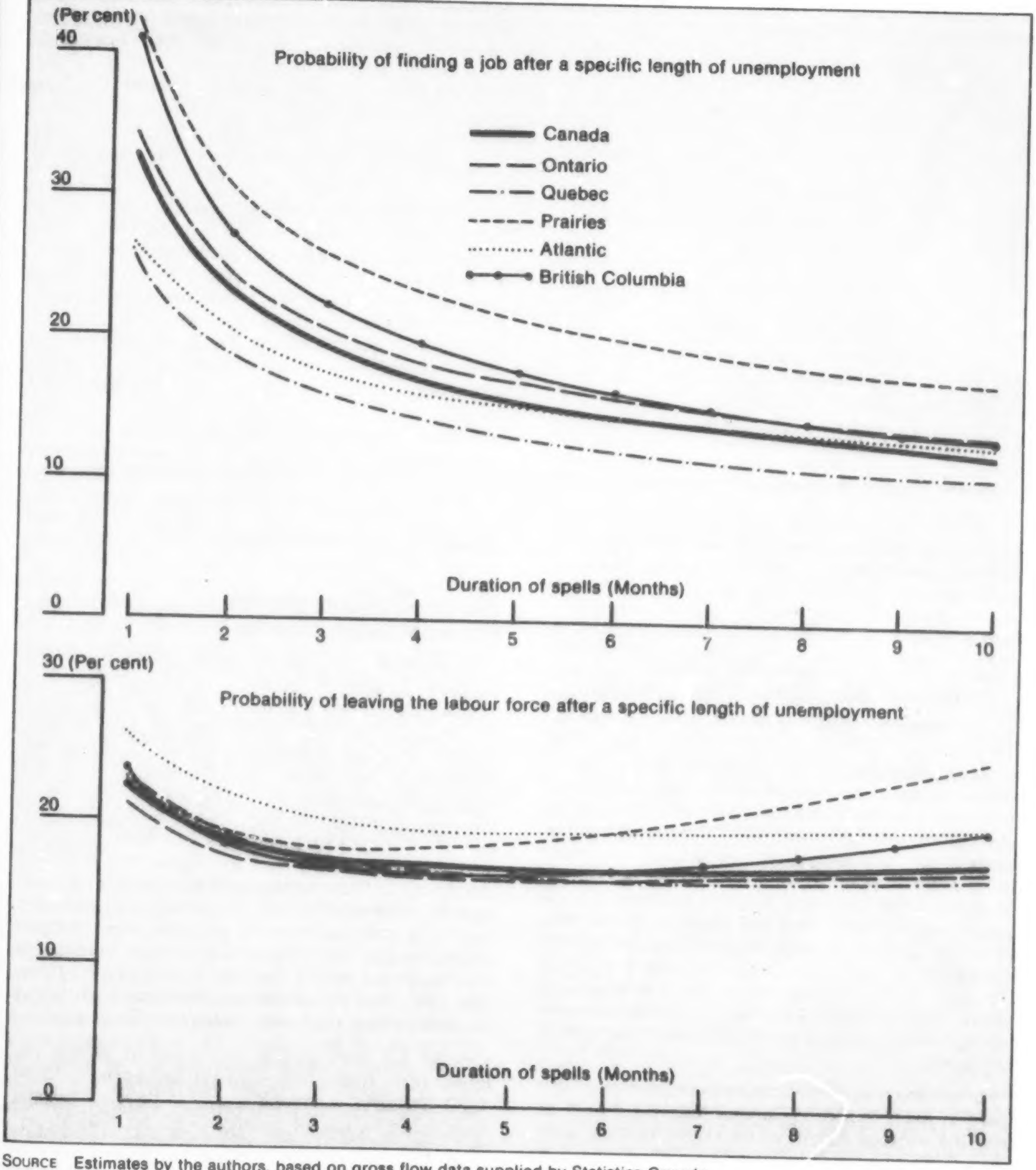
Characteristics of Completed Unemployment Spells among Regions, 1980

	Proportion of spells:		Proportion of unemployment due to spells:			Markov model:				
						Proportion of spells exceeding 6 months	Proportion of unemployment due to spells exceeding 6 months	Proportion of unemployment due to spells ending in employment:		
	Ending within 1 month	Exceeding 6 months	Ending within 1 month	Exceeding 3 months	Exceeding 6 months			Within 3 months	Within 6 months	Total
						(Per cent)				
Atlantic										
All	52.54	4.57	23.55	44.28	18.36	3.54	12.62	27.11	38.61	45.86
Men	49.98	5.41	21.19	47.51	21.12	4.46	15.27	28.76	41.84	51.46
Women	55.92	3.53	26.99	39.76	14.79	2.40	9.35	24.48	33.78	38.53
Quebec										
All	50.93	7.15	19.34	52.85	26.99	5.99	19.42	23.93	35.57	46.15
Men	45.71	8.53	16.68	56.79	30.65	7.57	23.42	25.11	38.57	52.84
Women	53.19	5.50	23.08	47.40	22.16	4.27	14.74	22.15	31.41	38.26
Ontario										
All	55.13	4.85	24.98	44.78	20.23	3.27	11.81	32.58	45.26	54.19
Men	53.31	6.37	22.37	50.08	25.06	4.47	15.29	34.36	49.38	62.55
Women	57.05	3.57	27.79	39.41	15.55	2.28	8.27	29.65	39.64	45.36
Prairies										
All	64.64	2.09	36.35	30.73	9.94	0.82	3.56	43.53	54.69	59.02
Men	58.72	2.50	30.50	34.37	10.98	1.26	5.18	46.82	60.98	66.58
Women	71.21	1.62	44.00	26.15	8.43	0.49	2.23	40.31	48.17	51.06
British Columbia										
All	64.46	3.30	34.07	36.83	15.68	1.79	7.04	38.67	49.65	56.06
Men	63.43	3.61	32.71	38.44	16.92	2.11	8.12	42.42	55.06	62.87
Women	65.56	3.05	35.44	35.41	14.79	1.51	6.07	34.58	43.94	49.26

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Chart 8-3

Unemployment Exit Probabilities among Regions, 1980



Probability of finding a job after a specific length of unemployment

Probability of leaving the labour force after a specific length of unemployment

SOURCE Estimates by the authors, based on gross flow data supplied by Statistics Canada.

sex, developed on the basis of hazard functions. The longest duration, 2.5 months is found in Quebec, and the shortest, 1.8 months, is experienced in the Prairies. The duration of unemployment is lower for women than for men in all cases.

In each region, a large proportion of unemployment spells terminate within a month (Table 8-7). In the Prairies and British Columbia, close to two-thirds of all the spells are in this category. For women in the Prairies, it is as high as 71 per cent. In the high unemployment regions of Atlantic and Quebec, the percentage is significantly lower, around half of all unemployment spells. Long spells of unemployment, in contrast, are few: only 4.6 per cent of unemployment spells are of a duration longer than six months in the Atlantic region. This percentage is highest for Quebec at 7.2, while only 2.1 per cent of spells fall in this category in the Prairies, with an even lower 1.6 per cent for women. Despite their low frequency, long spells contribute disproportionately to total unemployment, ranging from 27 per cent in Quebec to less than 11 per cent in the Prairies. While spells of one month or less are far more numerous, they contribute less than 20 per cent of unemployment in Quebec to a high of 36 per cent in the Prairies.

It is obvious that long spells of unemployment should give rise to more unemployment than do equal numbers of short spells. The point to note, however, is that the contribution of long spells is greater than can be expected if the chance to leave unemployment is random. A comparison of the contribution to unemployment as measured by observed and Markov model data reveals that, in each of the regional labour markets, long spells are more numerous than can be expected under random chance conditions. The proportion of unemployment due to long spells, as recorded under the two measures also shows a concentration of unemployment in long spells that cannot be explained away as "normal". The escape rate out of unemployment then diminishes as the duration of unemployment increases, so more persons are trapped in long spells than is normal. Evidence of this behaviour is noted in Chapter 3 for Canada as a whole. Here we simply add that this behaviour occurs in each regional labour market considered by itself; this comes out clearly in Chart 8-3. Even in the Prairies, where the unemployment rate in 1980 was about 4 per cent, a disproportionate although limited amount of unemployment was due to long spells.

Put another way, while a majority of unemployment spells in each region of Canada last one month or less, the average length of an unemployment spell currently in progress is a long one. This message is driven home by the comparison of data in Table 8-7 showing the unemployment due to spells exceeding three or six months. Approximately 53 per cent of all unemployment is caused by spells of three months or longer in Quebec. Even in the Prairies, one-third of all unemployment is due to such spells. The proportions are even larger for men. Other regions fall within the range set by Quebec and the Prairies. Thus, while short spells describe the distribution of spells, the long spells are a more accurate reflection of the nature of unemployment in most of Canada's regions. This perception will be further emphasized when the discouraged worker phenomenon is considered below.

A good perspective on regional disparities in job access may be given by the proportion of total unemployment due to spells ending in employment within a certain period of time, say, three or six months. In Quebec, again the extreme low case in Canada, only a little more than one-third of unemployment is due to spells ending in employment within six months, whereas in the Prairies, the other extreme go so far as regions are concerned, the figure is close to 55 per cent. A rather large difference may be noted between men and women in this regard in each of the regions, men faring relatively better. Their lower success rate in finding a job may be one factor in explaining the higher rates of discouragement experienced by women. The next section examines this issue.

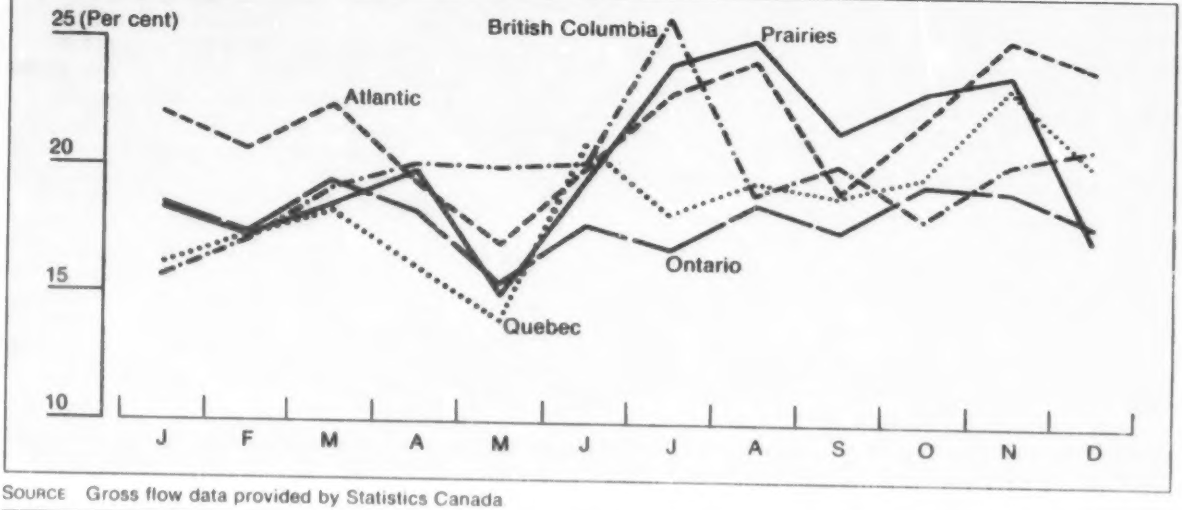
Worker Discouragement in Regional Labour Markets

As we have discussed at length in Chapter 4, the concept of average duration of unemployment is clouded by the fact that not all unemployment spells end in jobs. In fact, in the Atlantic and Quebec regions, only half of the spells do so. The other half terminate in withdrawal from the labour force. An even higher proportion (nearly 60 per cent) applies in the case of women. In the Prairies, a larger proportion of unemployed jobseekers are able to locate jobs. It is noteworthy that the higher the observed unemployment rate by region, the larger the percentage of withdrawal spells. If all workers continued searching until they found a job under the "indomitable searcher" hypothesis, the average duration of unemployment would then be much longer. Note, moreover, that, under this hypothesis, women would experience longer durations than men (Table 8-6).

Chart 8-4 portrays the probability of leaving the labour force from unemployment, *un*, each month in 1980. Seasonal variations appear to be much smaller than noted for the *ue* probability (Chart 8-2) above. The higher levels of withdrawal probability, *un*, for the Atlantic region appears to move in opposite directions from the *ue* probability, albeit with some lag;

Chart 8-4

Monthly Probability of Labour Market Transition from Unemployment to Not in the Labour Force among Regions, 1980



SOURCE Gross flow data provided by Statistics Canada

higher rates of jobfinding imply lower rates of leaving the labour force. Thus, some indication of worker discouragement can be read into these figures. The higher rates of withdrawal for the Prairies, however, defy such an interpretation, and suggest that some non-work-related factors may also cause transitions to non-labour-force status. Understandably, economic motivations for withdrawals would be a more significant factor in Atlantic Canada and Quebec where unemployment rates are very high. In Chapter 7 we note that worker discouragement varies across demographic groups. From the data presented in Table 8-6 and in Chart 8-4, it would now appear that regional variations also need to be considered.

Some estimate of the number of discouraged workers can be obtained from Table 8-8. Of the 393,000 persons not in the labour force who had engaged in some job search in the preceding six months, though "not looking" in the previous four weeks, 13.5 per cent believed that work was not available. If discouragement is a major factor explaining withdrawals from the labour force, this proportion should be high in depressed labour markets. This is borne out by the last column of Table 8-8. The contrast between Ontario and Quebec is especially revealing. Notice also that the number of persons believing jobs are scarce is so low in the Prairies and British Columbia regions that it is not reported.

To determine precisely the number of discouraged workers is very difficult with the available data. Using the rule of thumb developed in Chapter 4, our esti-

Table 8-8

Comparison of Discouraged Worker Estimates among Provinces, 1980

	Persons "not looking" for work in past four weeks (NL)	Persons who believe "no work available" (NWA)	
		Number	Share of NL
	(Thousands)		(Per cent)
Newfoundland	19	6	31.6
Prince Edward Island	...	...	...
Nova Scotia	17	...	...
New Brunswick	18	4	22.2
Quebec	137	24	17.5
Ontario	123	10	8.1
Manitoba	11	...	...
Saskatchewan	10	...	...
Alberta	20	...	...
British Columbia	34	...	...
Canada	393	53	13.5

... Indicates data based on very small samples; estimates are not published by Statistics Canada when they are below the limit of 4,000.

SOURCE Statistics Canada, The Labour Force, cat. no. 71-001, December 1980.

Table 8-9

Discouraged Jobseekers and Their Impact on the Unemployment Rate among Regions, 1980*

	Atlantic	Quebec	Ontario	Prairies	British Columbia	Canada
			(Thousands)			
Number of discouraged jobseekers:						
Men	8 - 17	29 - 55	17 - 32	2 - 6	3 - 6	57 - 112
Women	8 - 14	24 - 51	15 - 37	3 - 6	4 - 9	48 - 113
Both sexes	16 - 31	52 - 106	32 - 69	5 - 12	7 - 15	106 - 225
			(Percentage points)			
Addition to the unemployment rate:						
Men	1.4 - 2.9	1.6 - 2.9	0.7 - 1.2	0.2 - 0.5	0.4 - 0.8	0.8 - 1.6
Women	2.2 - 3.8	2.1 - 4.3	0.8 - 2.0	0.4 - 0.8	0.8 - 1.7	1.0 - 2.4
Both sexes	1.7 - 3.4	1.7 - 3.5	0.7 - 1.6	0.2 - 0.6	0.5 - 1.2	0.9 - 1.9

*In each pair of figures, the first represents the stock of those persons who, at any point in 1980, were no longer in the labour force, having left it after five months or more of job search; the second figure applies to those who left the labour force after three months or more of search. The estimates for men and women may not add up to the total for both sexes, and regional estimates may not add up to the total for Canada, because each is calculated independently and is rounded.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

mates are presented in Table 8-9. As above, we propose a range of estimates rather than a precise number, because there is no clear-cut line between the status of unemployed and the status of "inactivity." For example, it may be hypothesized that the scarcer the jobs, the earlier the discouragement phenomenon occurs, since it may take less time to identify the lack of jobs. Following that kind of approach would lead us to think that the higher end of the estimated range would apply for the Atlantic provinces and Quebec, while a number closer to the lower limit would better picture the situation in the other provinces. Whatever assumption we retain, it comes out clearly that discouragement has a highly regional character, being the more pronounced in the regions with the higher unemployment rate. In every region, women are relatively more likely to become discouraged than men. In brief, the discouragement phenomenon adds to regional disparities when one looks for the real burden of joblessness in the country.

Regional Patterns of Employment

A Steady State Picture

The steady state picture of the employment rate complements, the unemployment rate described earlier in this chapter. Ontario again serves as the divide in most of the aspects examined. Thus, east of Ontario, participants in the labour force enter into

Table 8-10

Employment Rate and Its Components among Regions, Monthly Average, 1980

	Calculated employment rate	Incidence of employment	Duration of employment
	(Per cent)		(Months)
Both sexes			
Atlantic	89.33	5.31	16.83
Quebec	90.10	3.84	23.47
Ontario	93.41	3.58	26.11
Prairies	96.11	3.71	25.91
British Columbia	94.45	3.72	25.38
Men			
Atlantic	89.36	4.82	18.55
Quebec	90.56	3.41	26.53
Ontario	93.78	2.94	31.85
Prairies	96.40	2.82	34.13
British Columbia	95.19	2.91	32.68
Women			
Atlantic	89.24	6.12	14.58
Quebec	89.40	4.51	19.84
Ontario	92.87	4.46	20.83
Prairies	95.65	5.06	18.90
British Columbia	93.32	4.96	18.83

SOURCE Estimates by the authors, based on data provided by Statistics Canada.

jobs more frequently but stay employed for shorter periods, the net effect being a lower employment rate. It should be recalled that the same regions exhibit higher exit rates from employment both into unemployment, *eu*, and into non-participation *en*. Ontario itself has the lowest incidence of employment but the highest employment duration (when both sexes are considered). Employment rates west of Ontario are highest in Canada, mirroring the lower unemployment rates of these regions. These characteristics are depicted in Table 8-10.

The average duration of a completed spell of employment ranges from one year and five months in the Atlantic region to two years and two months in Ontario. As discussed previously, this measure averages all employment spells without attaching duration weights. From our perspective, a more appropriate concept would be the "experience weighted" measure developed in Chapter 2. This estimate can be derived by doubling the in-progress spell measure, and is presented in Table 8-11. At first glance, these results provide several surprises. The transitory nature of employment episodes in Atlantic Canada is not borne out. In fact, a high degree of permanence characterizes employment experience in this as well as in other regions. Jobs held currently last, according to our estimates, as long as 13.5 years in Atlantic Canada. Job permanency is even more in evidence in Quebec where the tenure is expected to last some 14.8 years. The shortest tenure is for British Columbia with 11.6 years. As expected, women experience a much shorter duration of employment than men in each region (about six years shorter, no matter which region).

Table 8-11

Alternative Measures of Average Duration of Employment Spells among Regions, 1980

	In-progress spells T^*	Completed spells $S_{EW} = 2T^*$
	(Years)	
Both sexes		
Atlantic	6.8	13.5
Quebec	7.4	14.8
Ontario	7.1	14.2
Prairies	6.7	13.5
British Columbia	5.8	11.6
Men		
Atlantic	8.0	16.0
Quebec	8.6	17.2
Ontario	8.4	16.8
Prairies	8.1	16.2
British Columbia	6.8	13.7
Women		
Atlantic	5.0	9.9
Quebec	5.6	11.2
Ontario	5.4	10.7
Prairies	4.7	9.4
British Columbia	4.2	8.4

*See Chapter 2 for definitions.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

A Polarization of Employment Tenures

The steady state assumption used in deriving the figures reported in Table 8-11 may be open to some question. Clearly, cyclical changes alone can cause inflows into employment to diverge significantly from the outflows. There is, secondly, the impact of demographic waves, which has the same effect. A third factor is that spells ending in any one month are likely to be dominated by short spells and, vice versa, spells that are in-progress are likely to have length bias. While these arguments are quite valid for estimations of actual length of completed spells, we argue that they are of less consequence for interregional comparisons. Cyclical conditions, for example, do vary across regions, but their impact may be somewhat marginal. The demographic factor is even less variable by region. The length bias, if it does vary by region, should therefore reveal something about differences in employment tenure distributions. It is these differences that we wish to focus upon in this section.

Consider now the difference in estimates of the completed duration of spells presented in Table 8-10 and average duration of *in-progress* spells included in Table 8-11. The in-progress spells are much longer, reflecting the length bias. Notice, however, that the relative ranking of regions is quite different in the two estimates: in the completed spell measure of Table 8-10, the Atlantic region exhibits the lowest duration, while in the in-progress spell measure, it is British Columbia. Quebec, which is ranked second from the bottom in Table 8-10 records the longest tenure in Table 8-11.

In attempting to explain the shift in ranking in the two measures, we come to the following hypothesis. In each region, there appears to be a polarization of the workforce in groups which have shorter spells – the turnover group – and those with very long spells. In some regions, such as Quebec, this polarization is sharper: the turnover group has even shorter spells relative to other regions and, at the same time, the group with long spells demonstrates a more permanent attachment to jobs than is apparent in other regions. A fairly similar pattern holds for the Atlantic region, although the difference is not as sharp as for

Quebec. In other words, short spells are shorter and long spells longer in Quebec and the Atlantic region, pointing to a dichotomy in the workforce. Such duality does not characterize employment in Ontario and the two western regions: if completed spells are longer relative to other regions, the continuing spells are shorter. The reason for shorter continuing spells in the two western regions may be found in their high rates of job growth (4 per cent in British Columbia and 3.7 per cent in the Prairies during the 1970s compared with 3 per cent in Ontario, 2.3 per cent in Quebec, and 2.9 per cent in Atlantic Canada) since new jobs reduce the average of the job tenures.

Estimates of Job Tenures by Region

As we argue above, in estimating the duration of actual job tenures, it is important to remove the length and steady state biases mentioned. For this purpose, we draw upon the continuation rate approach described in Chapter 6. The data are directly derived from the Labour Force Survey and not through the gross flows. For all persons employed in 1981, the distribution of jobs by eventual tenure appears in Table 8-12 for the five regions of the country. It shows quite clearly that long-term jobs are much more common than one might infer from the low duration of completed spells (Table 8-10). A job held in 1981 will eventually last for 11 years before terminating in Quebec and 10 years in Ontario. Average job tenures are significantly lower in the Prairies (six and a half years) and British Columbia (close to seven years). Nevertheless, even in these regions, a high degree of permanence of job attachment is indicated. One measure of the degree of permanence is reflected by the proportion of current jobs that will eventually last more than 20 years: some 27.6 per cent of jobs currently held in 1981 fall in this category in the Atlantic region, 30.9 per cent in Quebec, 28.4 per cent in Ontario, 28.9 per cent in the Prairies, and 22.6 per cent in British Columbia. Despite some variations among regions, it is clear that long-term attachment is a main feature of employment in all regions, with Quebec exhibiting most permanence. Thus, although short spells are quite numerous, especially in the eastern part of the country, the long tenures constitute a very important characteristic of employment situations in all the regions.

The Nature of Short Spells of Employment

Since short spells are quite numerous, it is important to examine some aspects of their nature. Data from the Statistics Canada's Annual Work Patterns Survey shed some light on this question. A number of surprises are in evidence in Table 8-13.

Employment spells that originate and terminate in non-participation in the labour force, NEN, are by far the largest category of brief employment spells in each of the five regions. The preponderance of such spells is not explained by the youth factor alone. As

Table 8-12

Distribution of Jobs by Eventual Tenure among Regions, 1981

	Atlantic	Quebec	Ontario	Prairies	British Columbia
			(Per cent)		
Job tenure:					
Less than half a year	11.7	8.1	7.6	8.9	8.4
Half to 1 year	6.9	5.2	6.2	8.6	8.6
1 to 2 years	3.8	3.3	4.0	7.3	5.9
2 to 3 years	7.8	7.5	9.7	10.7	11.3
3 to 5 years	7.5	8.7	7.9	10.1	8.7
5 to 10 years	16.5	15.7	14.7	14.2	18.1
10 to 15 years	12.8	9.8	13.1	9.0	12.1
15 to 20 years	5.4	10.8	8.6	2.0	4.2
20 to 25 years	5.5	5.6	3.0	2.9	4.3
25 to 30 years	2.5	4.4	6.5	2.2	4.9
30 to 35 years	10.4	12.0	11.7	10.7	9.5
More than 35 years	9.2	8.9	7.2	13.1	3.9
			(Years)		
Median job tenure	8.7	10.8	10.0	6.5	6.9

Source Estimates by the authors, based on job tenure data provided by Statistics Canada.

Table 8-13

Distribution of Short-Term Employment Spells among Regions by Type of Spell, 1979*

Region	Spell type					Number of spells
	UEU	UEN	NEU	NEN	All spells	
	(Per cent)					(Thousands)
Atlantic	16.4	12.8	9.7	61.1	100.0	422
Quebec	17.8	12.9	11.8	57.5	100.0	822
Ontario	13.4	11.8	9.1	65.8	100.0	1,152
Prairies	9.1	11.6	8.5	70.9	100.0	630
British Columbia	13.1	7.9	6.9	72.0	100.0	447

*See Chapter 2 for definitions of spell types. These spells were begun and completed during the calendar year.
SOURCE Based on data provided by Statistics Canada's Annual Work Patterns Survey, 1980.

for seasonality, Atlantic Canada, with its highly seasonal economy, is not a leader in respect of this type of spell. The Prairies and British Columbia, contrary to expectations, have the highest proportion of NEN spells. This piece of evidence reinforces the view that brief employment spells are quite distinct from mainstream jobs. Brief spells appear to represent more the characteristic of a labour market than of the labour force with limited attachment to the labour force. On the other hand, spells that originate and terminate in unemployment UEU, are a small proportion of all short spells. The concept of aimless wandering from one unsatisfactory job to another, punctuated by periods of unemployment – a characterization developed by the turnover school – does not appear to be supported by those data.

Conclusion

The large and persistent differences in key labour market indicators across regions can be examined to much advantage using the dynamic approach. Low rates of unemployment among regions are associated with low rates of inflow into unemployment and high success rates in finding jobs upon entry or re-entry into the labour force. An unemployed person has the highest probability of obtaining a job in the Prairies and is least likely to find one in Quebec. Similarly, if a person is contemplating entry into the labour force, his chances of entering directly into jobs are highest in the Prairies and lowest in Quebec. Low unemployment rates are also associated with low continuation rates in unemployment, *uu*, and high probabilities of finding jobs, *ue*. High continuation rates in employment *ee*, are generally found to coexist with low unemployment rates. In general, the higher the incidence of unemployment, the greater the unemployment rate. With some exceptions, these patterns hold for men as well as for women. Also, where the particular flow rate is high for men in a region, the rate for women is even higher.

When the unemployment rate is separated into its incidence and duration of components, a seemingly paradoxical result arises. On an interregional basis, both the incidence and duration of unemployment move in the same direction. A region with high exposure to the risk of unemployment for its labour force also exhibits longer durations of unemployment, although the variations in duration are less than the variations in incidence. As a consequence, much of the unemployment rate differential is explained by differences in the incidence of unemployment.

The cases of the Atlantic and Quebec regions illustrate the difficulty in describing the nature of unemployment by using a simple framework: in one case, job separations are the major factor and in another it is the difficulties in finding jobs. The lower unemployment rates in the Prairies and British Columbia than in Ontario are due largely to the relative ease of locating jobs there although the lower separation rate from employment also contributes. Amplifying some of the flows – particularly those in and out of the labour force – seasonality is at work in very different ways among the regions, more pronounced in Atlantic Canada, a little less in Quebec, and much less in other regions.

As with Canada, in each region, a majority of unemployment spells are of very brief duration, say, of four weeks or less. In the Prairies and British Columbia, close to two-thirds of all spells are of this variety. Spells of unemployment exceeding six months, in contrast, form a small proportion: about 2 per cent in the Prairies and a high of 7.2 per cent in

Quebec. Yet the long spells contribute a disproportionately large percentage of total unemployment in each region. The 7.2 per cent of spells account for 27 of unemployment in Quebec; in the Prairies, the 2 per cent of long spells contribute 10 per cent of unemployment. In brief, while most unemployment spells are short in each region, an important part of unemployment is experienced in long spells. The contribution of long spells is more than can be expected under "normal" conditions. This fact leads us to conclude that, in each region, the escape rate out of the unemployment state systematically diminishes as the unemployment spell lengthens. This evidence is consistent with the fact that job scarcity causes the unemployment spells to lengthen.

Evidence of job scarcity can also be read into the high rates of withdrawal from labour force occasioned by unemployment spells. Some 52 per cent of all unemployment episodes in the Atlantic region terminate not in jobs but in withdrawals from the labour force. Although, the Atlantic region and in Quebec, these high withdrawal rates may reflect worker discouragement, the high rates of withdrawal in the Prairies suggest that non-work-related motives may also be responsible. Thus rates of worker discouragement vary among regions: they are much higher in the Atlantic region and Quebec than in Ontario, but are generally lower in the Prairies and British Columbia than in Ontario.

The employment picture across regions suggests the following generalization. The incidence of employment is higher in regions east of Ontario than those in the west, but the average duration of employment spells in the east is shorter. The net effect is a lower employment rate in eastern Canada. Closer analysis of data reveals a high degree of permanence in the nature of employment in each region of Canada. Jobs in progress in 1981 are expected to last for some 11 years before terminating in Quebec and for 10 years in Ontario. Even in British Columbia, which exhibits the lowest tenures, the average is six and half years. The coexistence of such a high job permanence and high turnover in short employment spells leads us to believe that there is a polarization in the job markets in the regions, especially in Quebec and the Atlantic region.

The permanency of job tenure has important implications for the wage determination process and for the role that wages play in clearing the labour market. The importance of long-term employer-employee relationship suggests that institutional arrangements be given greater emphasis in understanding the working of the labour market. The evidence on permanent job attachments also reduces the significance of labour market turnover. Our finding that a large proportion of short spells do not begin and end in unemployment also casts doubt on the turnover characterization of unemployment.

9 Concluding Remarks

The Point of Departure

Despite its significance as an important public issue, it is remarkable how little unemployment in Canada has been studied and how poorly its causes are understood. During the 1970s, the dominant view about the main cause of unemployment was that workers were reluctant to take up jobs that were available. The burden of unemployment was thought to be limited because people were, on average, unemployed for very brief periods. It was argued that the unemployment rate was kept high because large numbers of persons flowed into the unemployment state, stayed there for a short while and then found jobs.

This high-frequency, short-duration view of unemployment, the so-called "turnover" view, could perhaps be less of a concern if it were held only by a small group of academics. Far from it. This view has had a profound impact on policy makers. To cure the turnover variety of unemployment, they have attempted to provide more labour market information, so that workers should take less time in locating jobs, and have emphasized training, so that skills of workers could be matched to jobs that were assumed to be available. Efforts to stimulate demand for labour were given low priority in this scenario. If only employees could be induced to exhibit greater stability in holding onto their jobs longer, the problem of unemployment could be beaten. This, in a nutshell, is the view of the "new unemployment" school of labour economists.

The Economic Council of Canada, in its 1976 labour market report *People and Jobs*, emphasizes the need to study labour markets from the perspective of flows. The present study carries out a flow analysis of the Canadian labour markets in its demographic and regional dimensions. The flow perspective is complemented by the traditionally employed stock data from Statistic Canada's Labour Force Survey as well as data that deal with labour market experience over a one-year period (its Annual Work Patterns Survey). Some use is also made of the Labour Force Tracking Survey, developed by the (former) Department of Industry Trade and Commerce (1979*a*, *b*).

Overview of Findings

The labour market provides a picture of unceasing flux. Some 440,000 employed persons separated from their jobs on average each month during 1980, while 435,000 persons moved out of non-participation in the labour force to either employment or unemployment. The unemployed pool itself is also subject to large movements. In 1980, some 366,000 persons moved out of this state on average each month. Even though this flow estimate is subject to some upward bias, it is clear that unemployment touches a much larger proportion of the workforce than is apparent from the number of unemployed given by the stock data. In fact, using a different source of information, we note that, while the annual average rate of unemployment in 1979 was 7.5 per cent, some 22 per cent of the workforce, and almost one in every four female labour force participants, experienced some unemployment during that year. There arises then the question of how these flows are related to the familiar concept of the unemployment rate.

The unemployment rate can be decomposed into two contributing factors. One is the incidence of unemployment or the measure of the risk of exposure to unemployment. We describe this risk as the proportion of the labour force that becomes unemployed each month, on average. The other component is the length of an unemployment spell when it occurs. This decomposition exercise is undertaken in Chapter 2 with the help of the simplifying assumption of steady state. The average duration of completed spells turns out to be much shorter than the in-progress spell measure published each month by Statistics Canada. Our examination also reveals that the higher rate of unemployment for women is related to their greater exposure to the risk of unemployment. The length of their unemployment spells on the other hand is, in fact, shorter than those of men. Thus, if the incidence of unemployment faced by women could be reduced to the same level as for men, their unemployment rate would in fact be a full one percentage point lower than that for men.

These findings raise two additional questions.

- Why do women become unemployed more often than men?
- What factors explain their briefer duration of unemployment?

Closer examination of labour market flows reveals a much more pronounced role of labour force transitions for women. They leave both employment and unemployment to go out of the labour force in relatively larger numbers than do men. When they reenter the labour force, their unemployment rate is pushed up. Leaving the labour force also means that their duration of unemployment is shortened in comparison with men. Thus, relative to men, women exhibit greater rates of inflow into unemployment but shorter spells of unemployment when it occurs.

These considerations suggest the importance of labour force transitions in determining the meaning of unemployment. The duration of unemployment itself becomes open to several interpretations: if jobseekers quit their search because they cannot locate jobs, are they not really unemployed, even though the official statistics classifies them as being out of the labour force? Additionally, can we believe that the brevity of unemployment spells means that unemployment does not impose a heavy economic burden on these individuals and that they are able to locate jobs relatively easily?

In Chapter 3, we note the limitations of the concept of average duration of unemployment, and focus on the distribution of unemployment spells by their length. This analysis leads us to three conclusions. First, while most unemployment spells are brief, most unemployment is contributed by long spells. More than 45 per cent of all unemployment is due to spells lasting three months or more (data for 1980). Thus, long periods of unemployment form a major determinant of the total volume of unemployment experienced in Canada. Second, as the period of unemployment lengthens, the chance of finding a job diminishes. This reduction in the "escape rate" from unemployment is not simply because "less desirable" workers are left at the end of the queue. In fact, even when allowance is made for a large number of personal characteristics of the unemployed, there remains a distinct impact of the length of unemployment itself. Sheer lack of jobs would be one explanation for these findings. Third, further indication of jobfinding difficulties is evident in the proportion of unemployment spells that fail to materialize in jobs. Some 44 per cent of unemployment spells do terminate not in jobs but in exits out of the labour force; the proportion is even higher for women (52 per cent). The longer the period of job search, the greater the proportion of spells that are unsuccessful. Thus, the duration of unemployment spells, especially the average measure, ignores this very important aspect of the outcome of a search process. Transitions out of the labour force again appear as a key determinant of the meaning and significance of unemployment.

Why do unemployed individuals quit searching without locating a job? Some may quit searching because they have lined up a job that only begins sometime in the future. Others may have personal reasons for dropping out of the labour force. Still others may wish to improve their skills, and may go back to school or training institutes. Some may leave the labour force permanently. In addition to these factors, a substantial proportion may quit job search simply because they believe further search is going to be fruitless. Chapter 4 looks at the issues related to such discouragement. The discouraged workers are in reality unemployed even though official statistics do not count them as such. Our analysis reveals that a large number of persons not in the labour force are discouraged workers who can be described as the hidden unemployed. These persons, if added to the number unemployed would have raised the unemployment rate by 0.6 to 2.0 percentage points in 1980. The officially measured unemployment rate therefore understates the unemployment problem. It also lowers the average duration of unemployment. The importance of long-term unemployment (LTU) as a determinant of overall unemployment would be even greater if job discouragement were taken into account.

Thus far, the evidence presented suggests that long-term unemployment is of crucial significance in understanding the unemployment experience. But is the LTU (defined as unemployment spells lasting more than six months) cyclically sensitive? This issue is examined in Chapter 5. When the economic conditions take a turn for the worse the number of persons losing jobs increases, and the measured unemployment rate rises. The increase in the unemployment rate, however, does not come only from the new entrants in the ranks of the unemployed. The duration of unemployment lengthens for all unemployed. This duration effect is generally the larger of the two impacts in raising the unemployment rate. However, as shown in the Appendix, this conclusion may be dependent on the nature of events underlying the unemployment rate increase. Long-term unemployment nevertheless is still highly cyclical. The LTU not only contributes disproportionately to unemployment at any given level of unemployment, but also contributes the largest share of an increase in unemployment. In contrast, the inflow into the unemployment pool is not nearly as cyclically sensitive.

These findings emphasize that unemployment is basically a demand deficiency problem rather than a turnover problem: total unemployment is less dependent on the inflow into the pool of the unemployed and more on how long people are trapped in this pool. The importance of the inflows into the pool of unemployment is lowered by the fact that they are subject to two opposing forces that tend to cancel each other. When the economic climate improves, for instance, job losses decrease, thereby reducing the inflow into the pool. Working in the opposite directions, however, are two other inflows:

- employed persons tend to quit more often to find a more suitable job and
- discouraged workers tend to stream back into active job search.

Understanding the changes in the rate of unemployment therefore gains more by focusing on the LTU rather than on the turnover type of unemployment.

A change in economic conditions does not, of course, have full impact on the LTU immediately. Rather, our analysis reveals a lingering impact for as long as a year, although the maximum impact is felt in the fifth month after a change in economic conditions is experienced.

As in the case of unemployment, the nature of employment experience in Canada is characterized by a high degree of permanence. As shown in Chapter 6, the eventual tenure of a job currently held is long, about nine years. Brief spells of employment, although very numerous, account for a small proportion of total employment. The large movements in and out of the employment state are quite unimportant in determining the total volume of employment. These findings, reported in Chapter 6 have some bearing on the nature of unemployment. On the face of it, they support the notion of long-term contracts in the labour market that drive a wedge between current movements in aggregate demand and current fluctuations in the level of wages. This insulation of long-term employment from cyclical changes in demand means that inflows into unemployment are greater for those segments of the labour force that have briefer job attachments. At the same time once unemployed, the prime-age worker would have greater difficulty in locating jobs. A closer look at brief spells of employment reveals that the typology of workers, whose moves from one undesirable job to another are punctuated by periods of unemployment, is not the general rule. Most brief spells of employment are actually linked to transitions out of the labour force rather than to unemployment. Repeatedly, the theme of labour force exit and entry looms large as a description of major flows in the labour market.

A key proposition of the turnover literature is that unemployment rates are higher for the demographic group that experiences greater risk of entering the unemployment state. The findings of Chapter 7, which is devoted to an examination of the behaviour of demographic groups, generally support this contention. However, in view of the additional findings presented in the chapter, our interpretation of these observations differs markedly from that of the turnover analysts.

Brief spells of unemployment of the variety that turnover analysts have emphasized, although very numerous, explain only a minor part of total unemployment for each of the demographic groups considered. Long spells, which are symptomatic of jobfinding difficulties, contribute a very large part of unemployment. Additional evidence of jobfinding difficulties comes from discouraged workers. The groups with higher unemployment rates also suffer disproportionately from discouragement. When this factor is considered, their average duration of unemployment rises considerably. Multiple spells are also somewhat more frequent for youth. More importantly, when total unemployment time is considered, regardless of the number of spells in which it occurs, demographic groups with high unemployment rates spend a larger fraction of their labour force time in unemployment than do other groups. The close relationship between the incidence and the rate of unemployment is therefore partly a statistical artifact and partly due to behavioural factors. When appropriate allowance is made for these factors, the duration of unemployment may turn out to be the main explanation for changes in the rate of unemployment.

Just as the high-incidence, short-duration unemployment does not tell the main story about unemployment, the high rates of job turnover similarly have limited significance. Even in the case of youth, for whom employment duration data by age always have a downward bias because of their limited exposure to the labour force, we find that brief spells of employment, although predominant, account for only a small fraction of employment and that much of employment is explained by spells lasting at least one year. The large job turnover that does occur is mainly a reflection of seasonal factors (young people working temporarily during summer).

Evidence is also presented in Chapter 7 on the labour market experiences of teen-agers and young adults, which are different in many ways. As they search for a more permanent attachment to the labour market, young adults encounter more severe problems and deserve greater attention by policy makers.

The labour market performances of the various Canadian regions are structurally different. Regions east of Ontario experience higher rates of unemployment and lower participation rates, whereas the reverse holds in the western part of the country. The gross flow analysis sheds some light on these differences. Two main features can be noted again.

- Regional differences in labour market flows contribute a lot to the understanding of the nature of unemployment and employment in Canada. In the eastern half of the country, seasonal factors still play a significant role which is well reflected by gross flow data.
- The distribution of employment duration presents a varying degree of polarization into very short and very long-tenured jobs, more accentuated in Quebec and less in the Prairies.

Interpreting the Results

The dynamic (turnover) view of the labour markets has provided the point of departure for this study. The findings summarized in the preceding section point out the usefulness of this approach. However, our results bring important nuances to the findings of the turnover school.

The advantages the dynamic approach affords are that the separate components of incidence and duration of unemployment can be isolated and that all flows in the labour markets can be examined together. The movement between unemployment and non-participation is especially important in interpreting the significance of observed unemployment levels.

While emphasizing the importance of movements in the labour market the turnover school derives some misleading conclusions.

- In view of the fact that the unemployment experience is widely shared among the labour force and that average spells of unemployment are brief,it concludes that unemployment is not overly burdensome for those who experience it.
- Jobfinding is considered to be easy since the average unemployment spell was found to be brief.
- Employment instability is regarded as the most important cause of high unemployment rates.
- In general, labour markets are considered to respond to large equilibrating flows and to generally clear.

While supporting some of these conclusions, our findings differ in important respects and cast doubt on the general applicability of these conclusions to the Canadian economy.

We have provided evidence of considerable mobility in the labour market. People flowing in and out of unemployment are rather numerous in comparison with the "stock" of unemployed. High unemployment rates by demographic groups are always accompanied by higher incidences of unemployment and generally lower durations. The average duration of completed spells of unemployment is indeed brief. Even the distribution of unemployment spells apparently provides broad support for the turnover literature. A very large proportion of unemployment spells do in fact terminate within a very short period of time (55 per cent ended within a month in 1980). On the employment side, demographic groups with low employment rates also have low durations of employment and high employment incidences. Partly because of the normal process of transition from school to work, there is evidence of unstable jobholding patterns for the younger workforce. It is also noteworthy that women have higher incidences of employment, but hold jobs for shorter periods than do men.

Where the conclusions of the turnover school may be misleading is in their interpretations of these findings. The fact that unemployment spells on average are brief does not necessarily mean that jobs are plentiful or easy to find. The fact that a large proportion of unemployment spells end within one month does not necessarily mean that these spells represent the dominant characterization of unemployment. While most unemployment spells are brief, we find that the average unemployed person is in the middle of a long spell of unemployment. Short spells contribute only a small proportion of total unemployment.

On the employment side as well, the brevity of average spells cannot be considered a good depiction of the employment picture. While a large proportion of spells are brief, the average employed individual is in the course of an extended period of employment. As is the case with unemployment, short spells add up to only a small proportion of total employment. In both employment and unemployment, and in the functioning of the labour market, there exists a very high degree of permanence.

The existence and the magnitude of long-term unemployment – which is even more important when the hidden unemployed are considered – suggest that the scarcity of jobs may be a major cause of unemployment in Canada. We have evidence to show that a significant fraction of withdrawals out of the labour force is due to workers who are discouraged by unsuccessful job prospects. They cease job search, and are not counted among the unemployed. Jobfinding is not easy for a significant part of the unemployed, and all demographic groups suffer from extended spells. In other words, job scarcity is a general problem. But some demographic groups suffer relatively more than others. Which group suffers more depends a great deal on whether the hidden unemployed are included and how this phenomenon is measured.

That job scarcity is a major explanation of unemployment rate behaviour is also suggested by the analysis of regional data. Regions where jobs are relatively plentiful have relatively fewer persons with long spells of unemployment. The proportion of long spells of unemployment increases dramatically where economic conditions are not as good.

In brief, the turnover view overstates the importance of supply factors and understates the demand factors in determining unemployment. Our research shows that the high-frequency, short-duration variety of unemployment is not the major explanation of high unemployment rates. Instead, it is the relative scarcity of jobs that appears to be the main culprit. Similarly, the turnover literature overemphasizes unstable patterns of jobholding and fails to take note of the long-term nature of most jobs. Moreover, the turnover school views the labour market as modeled in equilibrium theory. As Hall (1981) notes, "High turnover suggests a reasonably fluid market that can be understood in simple market-clearing terms." However, if total employment is constituted mainly of long spells, and most unemployment is also described by long spells, then the market-clearing nature of the labour market and the role of wages in this process must be questioned. When wages are determined in the course of long-term employment contracts between employers and workers, they may not reflect the current state of aggregate demand and the marginal productivity of workers. In the absence of these equilibrating mechanisms in the working of the labour market, the importance of the turnover view needs to be de-emphasized in the design of labour market policies.

Limitations of the Analysis

The broad outlines of our findings presented in this study are quite robust in the sense that the conclusions presented for 1980 hold generally for other years examined, 1976 to 1982. Data for 1981 and 1982 had just become available at the time of completion of this study, and have been incorporated in the Appendix. There are, however, some general qualifications to our conclusions that we would like to offer.

There is first the obvious qualification that a statistical study of unemployment must offer. The state of unemployment often imposes terrible emotional and psychological burdens. Prolonged periods of unemployment sometime show up in higher crime, illness, and marital breakdown rates. These very real issues, which should form part of a comprehensive study of unemployment, could not unfortunately be considered in this study.

Some observers claim that western economies are poised on the break of a major technological transformation engendered by the information revolution. The Canadian economy cannot fail to be influenced by such developments. A major displacement of labour is feared by some, while others expect a massive change in the composition of labour demand by skill, industry, and region in Canada. The present study has not explored the impact of such developments on the Canadian labour market.

For the issues examined, we would have benefited greatly from the use of longitudinal data. In particular, the long-term effects of unemployment experience on earnings and employment, especially in the case of youth, cannot be adequately examined without the help of such data. However, longitudinal data were unfortunately not available to us for this study. Another limitation of our analysis relates to the absence of a discussion of wages. This discussion was outside the scope of our study which is entirely in terms of labour "quantity". Changes in hours and productivity are also ignored.

Policy Implications

Turning to the policy directions indicated by our findings, the first point to note relates to the role of government. The large flows in the Canadian labour market do not seem to have a large impact on the volumes of either employment or unemployment. The fluidity of the labour market does not automatically suggest that these flows are equilibrating movements that would normally clear the market. On the contrary, both the employment and unemployment pools are characterized by a high degree of permanence. Given this characterization, market forces such as wages are unlike to rapidly clear labour markets. Thus perpetual market imbalances or failures are to be expected. A case for governmental intervention is therefore indicated, although we have not examined the wage flexibility issue in this study. The general tenor of our findings is that frictional unemployment is not a large proportion of observed levels of unemployment. Similarly, while there is some structural unemployment, the most serious part of unemployment is responsive to aggregate levels of demand in the economy.

Since demand deficiency is seen as a major cause of unemployment, availability of jobs becomes a major concern. Left to itself, and given the institutional-legal set-up of the economy, the labour market does not seem to generate a sufficient number of jobs. While more jobs are needed, our study does not examine the question of how they may be generated. However, in a context of limitations for an active demand policy in response to inflationary pressures, some direct job creation program can be launched to alleviate the burden of unemployment. The Economic Council of Canada argues in its 1982 report *In Short Supply* that such programs may be directed towards those who suffer the most difficult situation.

Lack of jobs is a general problem and causes unemployment problems for all demographic groups. However, some groups, as do some regions, suffer proportionally more than others. In designing labour market policies, the groups that suffer disproportionality from long-term unemployment need special attention. The findings presented above are quite rich in isolating various demographic groups and regions as prime targets for such attention.

A part of long-term unemployment is also of a structural nature, and requires policies that are not demand-oriented. Better understanding of this structural element is still needed. Some of this structural problem may be tackled by training policies, whereas in other cases mobility programs may be the answer. As well, long-range prospective information about labour markets may prevent some of the structural problems from arising in the first place.

The Impact of the 1981-82 Recession

Although some limited use of 1981 and 1982 information is also made, this study relies primarily on the data pertaining to the year 1980. How would the reality of this analysis differ should recessionary conditions be encountered in the labour market? This appendix attempts to answer this question by using information for the year 1982 when Canada experienced its most severe recession since the 1930s.

The main features of the 1981-82 recession are described and examined in terms of the relative roles of duration and incidence of unemployment in determining the rates of unemployment under these conditions. The analysis here is disaggregated by demographic groups and by region. The role of individual labour market flows is also examined. The impact of the recession on long-term unemployment is analysed; then the issues of labour force withdrawals and the impact of the discouraged worker behaviour on the unemployment rate are taken up. Some of the changes in the employment patterns that occurred during the recession are also looked at.

Characteristics of the 1981-82 Recession

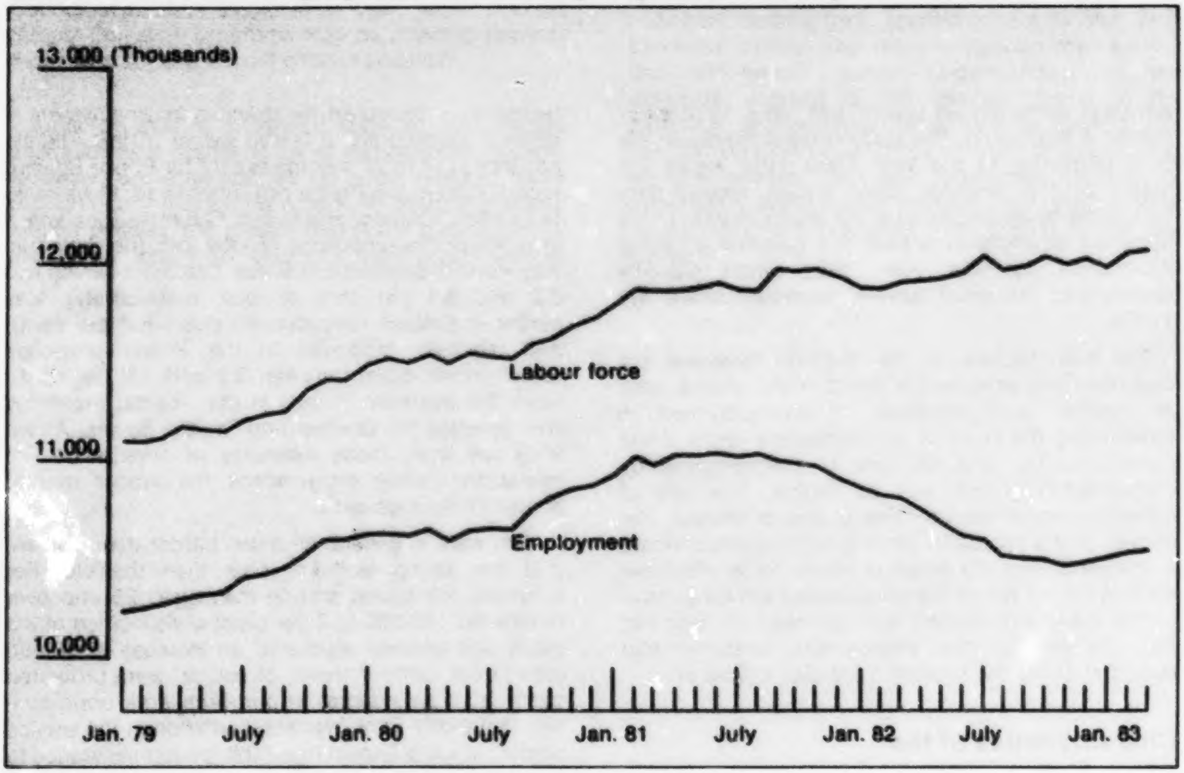
As depicted in Chart A-1, the impact of the recession was massive. The number of jobs lost between September 1981 and November 1982 amounted to some 595,000, or about 5.4 per cent of all jobs that existed at the end of August 1981. The rate of unemployment, which in August 1981 stood at a five-year low at 6.9 per cent, rose dramatically to 12.7 per cent in November 1982, at the trough of the recession. Had the participation rate not declined significantly from 64.1 per cent to 63.8 over the same period, the unemployment rate would have been even higher.

Although the recession hit all sectors of the economy the impact varied significantly by region and demographic groups. By region, the length of the recession – measured by changes in employment – differed significantly: it lasted longer in the Atlantic provinces (17 to 20 months except for Prince Edward Island) than in the Prairie provinces (6 to 11 months) or Quebec, Ontario, and British Columbia (one year). In terms of the proportion of jobs lost, the recession was worst in Quebec and British Columbia (which lost 8.2 and 8.1 per cent of jobs, respectively), less severe in Ontario (employment down 5.2 per cent), and relatively moderate in the Prairie provinces (employment down between 3.2 and 4.7 per cent), while the decrease in jobs in the Atlantic provinces was between the Quebec and Ontario figures. As we shall see later, these measures of severity do not reveal the whole story about the labour market impact of the recession.

Men were in general hit much harder than women, and the young workers more than the old. For example, job losses among men aged 25 and over numbered 118,000 (2.3 per cent) while women of the same age actually registered an increase of 33,000 jobs (1 per cent). Women, of course, were protected partly from an increase in part-time work opportunities and partly from overrepresentation in the service sector, which is known to exhibit greater resistance to economic downturns. The tightening of the job market for youths (aged 15 to 24 years) was the most severe: men in this age group lost 12.8 per cent of jobs while women lost 7.1 per cent. Thus, while it is true that men aged 25 years and over were hardest hit by the recession – the job loss they encountered changed dramatically from their prerecession experience – it is also true that unemployment among the young reached unprecedented levels of one in five labour market participants. The unemployment rate would have been even higher had there not been a dramatic reduction of 7 percentage points in the youth participation rate from September 1981 to September 1982. Such a process of the recession is evidenced by an unemployment rate being higher for men than for women in 1982 (11.1 versus 10.8) for the first time in more than ten years.

Chart A-1

Labour Force and Employment, Seasonally Adjusted, January 1979 to March 1983



SOURCE Statistics Canada, Historical Labour Force Statistics, cat. no. 71-201.

The Role of Incidence and Duration of Unemployment

Given this brief backgound of the situation that prevailed in 1981-82, the following question may be raised: what is the relative importance of various factors determining the precipitous increase in the rate of unemployment experienced during the 1981-82 recession? In attempting to answer this question, we propose to compare labour market experience of the 1981 and 1982 calendar years. This is obviously not an ideal procedure, for two reasons. First, as noted above, the recession got under way around summer in 1981 and not at the same time in all regions of Canada. Thus the average experience of 1981 itself contains some recession and some nonrecession months. Second, as shown in Chapter 5, some of the labour market variables take several months, sometimes even longer than a year, to fully manifest themselves in unemployment. This is especially true for changes in the duration of unemployment. Thus, average data for the year 1982 would not capture all the dynamic changes initiated during the year. Despite these two caveats, we believe that the comparison of the 1981 and 1982 calendar years affords considerable insight into the changes of the unemployment picture brought about by changes in the aggregated economy.

In the manner of the analysis in Chapter 2, Table A-1 represents the data on estimated unemployment rate in terms of its two components, namely, the incidence and the duration of unemployment in 1981 and 1982 among the regions of Canada. In terms of completed spells of unemployment, we note that their average duration rose from 2.3 months in 1981 to 2.8 months in 1982. About 3.2 per cent of the labour force entered unemployment, on average each month, in 1981; this percentage rose to 4.1 per cent in 1982. As a result, the estimated unemployment rate, which was 7.6 in 1981, reached 11.7 in 1982.

Table A-1

Unemployment Rates and Their Components among Regions, 1981-82

	1981			1982			Proportion of increases in unemployment rate attributable to the increase in:	
	Unemployment rate*	Incidence of unemployment	Duration of completed spells	Unemployment rate*	Incidence of unemployment	Duration of completed spells	Incidence	Duration
	(Per cent)		(Months)	(Per cent)		(Months)	(Per cent)	
Canada								
Both sexes	7.6	3.2	2.3	11.7	4.1	2.8	55.6	44.4
Men	7.4	3.0	2.5	12.2	4.0	3.0	58.4	41.6
Women	7.9	3.6	2.2	11.1	4.3	2.6	51.5	48.5
Atlantic								
Both sexes	11.4	4.8	2.4	14.5	5.5	2.6	57.0	43.0
Men	11.6	4.6	2.5	15.0	5.4	2.8	57.0	43.0
Women	11.2	5.1	2.2	13.6	5.7	2.4	57.1	42.9
Quebec								
Both sexes	10.9	4.0	2.7	15.2	4.9	3.1	61.8	38.2
Men	10.5	3.7	2.8	15.4	4.7	3.3	61.3	38.7
Women	11.4	4.5	2.6	14.9	5.3	2.8	67.1	32.9
Ontario								
Both sexes	6.4	2.8	2.3	10.4	3.6	2.9	51.7	48.3
Men	6.2	2.5	2.4	10.9	3.5	3.1	57.0	43.0
Women	6.8	3.2	2.1	9.9	3.8	2.6	43.4	56.6
Prairies								
Both sexes	4.1	2.2	1.8	7.7	3.1	2.5	52.0	48.0
Men	3.9	2.0	2.0	8.3	3.0	2.7	55.7	44.3
Women	4.4	2.6	1.7	7.0	3.2	2.2	47.3	52.7
British Columbia								
Both sexes	7.1	3.4	2.1	12.9	4.7	2.8	53.3	46.7
Men	6.8	3.2	2.2	13.4	4.6	2.9	55.9	44.1
Women	7.6	3.7	2.0	12.3	4.7	2.6	49.8	50.2

*This unemployment rate is not directly comparable with that published by Statistics Canada, since it is computed from data on gross flows.
SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

The last two columns of the Table A-1 reveal that about 56 per cent of the increase in unemployment can be traced to the increased risk of becoming unemployed and the remainder to the lengthening of the duration of unemployment spells. Knowing the process of the recession, it is no surprise to see that the role of incidence was somewhat larger for men than for women. In other words, when the two steady states are compared, the incidence component of the unemployment rate appears to be slightly more prominent in describing the change that occurred between the two years in question. This conclusion of course rests on the assumptions underlying the steady state analysis as seen in Chapter 2. Although the constraints of the steady state hypotheses are rather strong in a period of major disequilibrium, this result clearly contrasts with the one obtained in Chapter 2, thus reinforcing the precautionary comment made about conclusions based on a comparison of the years 1976 and 1978 (in comparing these two years, we found a dominant role for the duration component in explaining the higher 1978 unemployment rate).

The relative weights of the two components of the rate of unemployment reveal some differences among regions (Table A-1) and age groups (Table A-2). In two regions, the role of incidence is higher than the national average and also higher for women than for men (Quebec and the Atlantic region) while, in the other regions, the role of duration is higher than the national average and, in particular, dominates the role of incidence for women. Disaggregated by age groups, the results show two peculiarities. Among men, the role of incidence takes more and more importance with age, a result somewhat contradictory to *a priori* expectations, given that older persons are usually better protected against layoffs because of the seniority rule. The severity of the recession and the sizable increase in the number of plant closures may be part of the explanation. Among women, the reverse pattern appears to occur, except for the cohort aged 20 to 24 years for whom the duration component dominates.

A more detailed examination of the underlying labour market dynamics is presented in Tables A-3 and A-4. Here the unemployment rate differential between the two steady states (4.14 percentage points) is broken down into its labour market flow components, again in the manner described in Chapter 2, for regions and for age-sex groups. The conclusion is that difficulties in locating jobs contribute more to higher unemployment in 1982 than the difficulties in holding onto jobs. Thus, for Canada as a whole, 1.21 percentage points are contributed by the transition from employment to unemployment, *eu*, while failure to find jobs by the unemployed *ue*, raised the rate of unemployment by 1.57 percentage points, and failure of the returnees to the labour force to locate a job, *pne*, added 1.05 percentage points to the rate differential (a total of 2.62 compared with 1.21). This general statement regarding jobfinding difficulties is valid for all regions of Canada.

Table A-2

Unemployment Rates and Their Components among Age-Sex Groups, 1981-82

	1981			1982			Proportion of the increase in unemployment rate attributable to the increase in:	
	Unemployment rate*	Incidence of unemployment	Duration of completed spells	Unemployment rate*	Incidence of unemployment	Duration of completed spells	Incidence	Duration
	(Per cent)		(Months)	(Per cent)		(Months)	(Per cent)	
Men								
15 to 19 years	16.4	8.1	2.0	24.5	10.1	2.4	56.4	43.6
20 to 24 years	12.7	4.9	2.6	20.0	6.3	3.2	56.9	43.1
25 to 44 years	5.7	2.1	2.7	10.3	3.1	3.3	63.5	36.5
45 to 64 years	5.0	1.9	2.6	8.7	2.8	3.1	68.1	31.9
Women								
15 to 19 years	14.2	7.3	1.9	17.7	8.4	2.1	62.7	37.3
20 to 24 years	9.5	4.1	2.3	14.4	5.2	2.8	46.6	53.4
25 to 44 years	7.0	3.1	2.3	10.1	3.7	2.7	51.9	48.1
45 to 64 years	5.3	2.4	2.2	7.9	2.9	2.7	50.9	49.1
All workers	7.6	3.2	2.3	11.7	4.1	2.8	55.6	44.4

*This unemployment rate is not directly comparable with that published by Statistics Canada, since it is computed from data on gross flows.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Table A-3

Contribution of Labour Market Flows to Change in the Unemployment Rate among Regions, 1981 to 1982

	Labour market flow					Total change
	eu	*en*	*ue*	*un*	*pne*	
	(Percentage points)					
Canada	1.21	-0.01	1.57	0.28	1.05	4.14
Atlantic	0.64	-0.03	1.11	0.22	1.15	3.10
Quebec	1.22	0.07	1.67	0.15	1.18	4.33
Ontario	1.16	0.04	1.59	0.31	0.86	4.01
Prairies	1.07	-0.05	1.49	0.22	0.80	3.62
British Columbia	1.63	-0.13	2.29	0.36	1.48	5.75

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Among the demographic groups, the experiences of men aged 25 years and over provide an important exception to the general pattern described above (Table A-4). Job losses, *eu*, for this group contributed more to higher unemployment than job search among the unemployed, *ue*. This finding complements the description of demographic groups hit hardest by the recession as portrayed above. The experiences of women and men aged 20 years and over who leave jobs to withdraw from the labour force, *en*, present an interesting contrast. It appears that, when economic conditions worsen, these women choose not to leave employment at their usual rates, a factor which helps to lower their unemployment rates. Thus the contribution of *en* is negative in terms of the unemployment rate differential change from 1981 to 1982.

Another way of comparing the two steady states is in terms of examining changes in the employment-population ratio *EPR*, using the same methodology. This is done in Table A-5. *EPR* was lower by 3.88 percentage points in 1982. The largest contribution to this reduction in *EPR* came from a failure to find jobs (–2.25 for *ue* and –1.88 for *ne*) although job losses were also a significant factor (–1.74 for *eu*). Job losses were relatively more important for men than they were for women. For men aged 25 years and over, job losses became the single most important factor in lowering their *EPR*. This analysis reinforces our conclusions drawn from the unemployment rate differential analysis.

The Distribution of Unemployment Duration: The Importance of Long Spells

Our conclusions about jobfinding difficulties are reinforced by examining data on the distribution of unemployment duration with the help of the hazard function analysis. When labour market conditions deterioriate, major increases in the concentration of unemployment in long spells occur. As shown in Table A-6, spells exceeding six months in duration increased sharply from 5.2 per cent in 1981 to 8.8 in 1982, their contribution to total unemployment increasing from 21.5 to 31.8 per cent. This increased importance of long spells was the largest for men over 25 years and for women aged 45 to 64 years. Among women, teen-agers revealed the least increment in the influence of long spells.

Among regions (Table A-7), the Prairies, Ontario, and British Columbia revealed the most significant increases of the contribution of long spells to total unemployment – the 1982 level being more than 14 percentage points above that of 1981. Quebec, which already had the highest proportion of unemployment due to long spells, experienced a comparatively moderate increase (+4.6 percentage points) resulting in an unemployment concentration in long spells at a level lower than Ontario's in 1982 (33.3 per cent and 34.7 per cent, respectively). Although it also encountered a moderate increase,

Table A-4

Contribution of Labour Market Flows to Change in the Unemployment Rate among Age-Sex Groups, 1981 to 1982

	Labour market flow					
	eu	*en*	*ue*	*un*	*pne*	Total change
			(Percentage points)			
Both sexes						
All ages	1.21	–0.01	1.57	0.28	1.05	4.14
Men						
All ages	1.65	0.10	1.80	0.21	0.97	4.79
15 to 19 years	1.50	0.36	3.27	0.23	2.70	8.12
20 to 24 years	2.22	0.31	3.29	–0.03	1.44	7.30
25 to 44 years	1.99	0.34	1.70	0.07	0.42	4.58
45 to 64 years	1.73	0.28	0.80	0.28	0.53	3.63
Women						
All ages	0.62	–0.19	1.33	0.26	1.13	3.17
15 to 19 years	–0.06	0.23	1.76	–0.20	1.68	3.42
20 to 24 years	1.48	–0.14	1.95	0.25	1.28	4.86
25 to 44 years	0.67	–0.19	1.21	0.30	1.07	3.09
45 to 64 years	0.66	–0.07	0.89	0.39	0.74	2.65

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Table A-5

Contribution of Labour Market Flows to Change in the Employment-Population Ratio among Age-Sex Groups, 1981 to 1982

	Labour market flow						
	eu	*en*	*ue*	*un*	*ne*	*nu*	Total EPR change
	(Percentage points)						
Both sexes							
All ages	-1.74	0.07	-2.25	0.56	-1.68	1.38	-3.88
Men							
All ages	-2.36	-0.48	-2.59	0.42	-1.61	1.29	-5.35
15 to 19 years	-1.23	-0.85	-2.66	0.10	-3.94	0.47	-8.13
20 to 24 years	-2.38	-0.80	-3.56	-0.02	-1.47	0.67	-7.59
25 to 44 years	-2.47	-0.92	-2.12	0.07	-0.52	0.24	-5.75
45 to 64 years	-3.14	-1.51	-1.46	0.77	-0.16	1.37	-4.13
Women							
All ages	-0.81	0.88	-1.76	0.40	-2.09	1.05	-2.34
15 to 19 years	0.05	-0.61	-1.46	-0.11	-2.29	0.43	-4.00
20 to 24 years	-1.86	0.49	-2.50	0.34	-0.73	1.42	-2.84
25 to 44 years	-1.04	0.93	-1.87	0.48	-2.50	0.91	-3.11
45 to 64 years	-1.09	0.45	-1.48	0.69	-1.21	0.98	-1.68

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Table A-6

Characteristics of Long-Term Completed Unemployment Spells among Age-sex Groups, 1981-82

	Proportion of spells:				Proportion of unemployment due to spells:			
	1981		1982		1981		1982	
	Exceeding 3 months	Exceeding 6 months	Exceeding 3 months	Exceeding 6 months	Exceeding 3 months	Exceeding 6 months	Exceeding 3 months	Exceeding 6 months
	(Per cent)							
Both sexes								
All ages	16.8	5.2	23.4	8.8	45.9	21.5	57.2	31.8
Men								
15 to 19 years	12.6	2.8	16.4	4.8	35.8	12.6	44.7	20.6
20 to 24 years	21.8	7.4	28.8	11.3	53.8	27.7	63.2	36.5
25 to 44 years	21.8	7.8	28.8	12.7	54.7	29.2	65.8	41.9
45 to 64 years	20.3	7.0	27.3	11.7	52.2	26.7	63.5	38.8
Women								
15 to 19 years	10.6	2.3	12.2	2.8	31.8	10.8	35.2	13.0
20 to 24 years	16.9	5.2	24.1	8.7	46.0	21.3	57.2	30.5
25 to 44 years	16.4	5.2	23.6	8.5	46.0	22.0	56.6	30.0
45 to 64 years	14.0	4.1	20.7	7.9	41.1	18.1	54.6	30.3

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

the Atlantic region appeared in 1982 with the lowest level (25.1 per cent) in long-term unemployment, even lower than that in the Praire region (25.2 per cent), which experienced the highest increase. This result for the Atlantic region reinforces the specific regional behaviour that we point out in Chapter 8. In all regions, the increase in the concentration of unemployment in long spells is higher for men than for women, thus aggravating the observed differences between men and women.

Table A-7

Characteristics of Long-Term Completed Unemployment Spells among Regions, 1981-82

	Proportion of spells:				Proportion of unemployment due to spells:			
	1981		1982		1981		1982	
	Exceeding 3 months	Exceeding 6 months	Exceeding 3 months	Exceeding 6 months	Exceeding 3 months	Exceeding 6 months	Exceeding 3 months	Exceeding 6 months
	(Per cent)							
Atlantic								
Both sexes	16.8	4.7	20.4	6.6	44.5	19.2	51.4	25.1
Men	18.6	5.5	22.8	7.9	47.8	21.8	55.1	28.4
Women	14.6	3.7	17.1	5.0	40.1	15.9	45.6	20.2
Quebec								
Both sexes	22.8	8.0	25.0	9.5	55.3	28.7	59.2	33.3
Men	24.9	8.9	27.0	11.1	57.8	30.6	62.5	37.4
Women	20.4	7.1	22.6	7.6	52.5	26.9	54.5	27.6
Ontario								
Both sexes	15.8	4.8	25.0	9.9	44.2	20.2	59.9	34.7
Men	13.5	6.0	27.7	11.9	48.9	23.6	64.1	39.8
Women	13.3	3.7	22.0	7.7	39.3	16.9	54.5	28.6
Prairies								
Both sexes	9.7	2.3	19.5	6.7	31.1	11.4	51.2	26.2
Men	11.5	3.1	23.3	8.3	35.7	14.7	56.1	29.8
Women	7.8	1.5	14.6	4.7	25.7	8.0	43.3	20.7
British Columbia								
Both sexes	13.9	3.8	22.6	8.4	40.0	16.6	56.1	30.6
Men	13.8	3.9	24.1	9.6	40.3	17.6	59.0	34.2
Women	14.3	3.6	20.6	2.8	39.8	15.3	52.0	26.0

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Impact of the Discouraged Worker Behaviour

The unemployment picture examined above does not take into account discouraged workers. As developed in Chapter 4, this factor raises the count of unemployed persons by including individuals who want a job but are not actively looking for one because they believe that no work is available. One would expect hidden unemployment to rise significantly when the aggregate economy suffers as dramatically as it did during the recession of 1981-82. Indeed, Table A-8 shows that unemployment spells that end in withdrawal from the labour force increased from an average of 43.4 per cent in 1981 to 47.2 per cent in 1982. Aside from men aged 45 to 64 years, this increase occurred for all age-sex groups. It is, however, the largest for youths.

By region (see Table A-9), the western provinces revealed the largest increase in labour force withdrawals, while the Alantic provinces experienced the lowest in 1982. Despite these regional differences, the ranking of the regions remained unchanged for both men and women: Quebec still had the highest level of withdrawal for both (51.9 per cent for men and 60.7 per cent for women), while the Prairies had the lowest (32.1 and 46.6 per cent, respectively).

As explained in Chapter 4, not all these withdrawal spells can be regarded as a manifestation of the discouraged worker behaviour. When the criteria developed in that chapter are applied, the estimated number of unemployed increases by 117,000 to 243,000 persons for 1981 and by 299,000 to 559,000 persons for 1982 (Table A-10). Although the number of discouraged workers increased more among men than women and more among adults than youths, the largest addition to the unemployment rate occurred for male teen-agers, whereas the lowest was for men aged 25 to 44 years. This latter figure is still very large in comparison with the observed unemployment rate. The overall unemployment rate would have been close to 15 per cent in 1982 if discouraged workers had been included, instead of the 11 per cent officially recorded (Table

Table A-8

Proportion of Unemployment Spells Ending in Labour Force Withdrawal among Age-Sex Groups, 1981-82

	1981	1982
	(Per cent)	
Both sexes		
All ages	43.4	47.2
15 to 19 years	50.4	57.4
20 to 24 years	36.5	42.2
25 to 44 years	40.1	42.9
45 to 64 years	48.8	49.5
Men		
All ages	37.6	41.9
15 to 19 years	49.9	57.3
20 to 24 years	30.6	37.7
25 to 44 years	28.5	33.2
45 to 64 years	44.1	44.1
Women		
All ages	49.7	53.9
15 to 19 years	51.0	57.5
20 to 24 years	44.1	48.4
25 to 44 years	50.1	53.4
45 to 64 years	54.6	57.2

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

A-11). It would have approached 30 per cent for male teen-agers, and would have been significantly above the 10 per cent officially recorded for prime-age men.

Considering the regional distribution of the discouragement effect (Table A-12), Quebec appears to be the region the most affected: its unemployment rate would have been higher in 1982 by about 5 percentage points if no discouragement from job prospects had occurred, and its unemployment rate would have exceeded that of the Atlantic region. Although it was not so extreme in the other regions, the impact of the discouraged worker phenomenon presented a severe increase in all regions when measured by the relative augmentation made to the unemployment rate.

This analysis of the discouragement behaviour during a deep recessionary period reinforces the point we make in the study with regards to the high cyclical pattern of this phenomenon. Statistics Canada observed the same pattern in its surveys for the very recent years.

The Distribution of Employment Duration

As we have seen earlier, the employment-population ratio, *EPR*, of every demographic group was greatly affected by the recession. The main reason seems to be the augmented difficulties that people had in locating a new job when unemployed or out of the labour force (particularly for women and teenagers, see Table A-5). Such a situation is not without consequences for the distribution of employment duration, as the analysis of 1982 tenure data shows, in comparison with the 1981 data examined in Chapter 6.

If it becomes much more difficult to get a job, this should be directly reflected in the number of persons having job tenure of less than a year. Indeed, such a result is clearly apparent in Table A-13. The employment-population ratio went down between 1981 and 1982 by 4.3 per cent and 1.3 per cent for men and women, respectively[1]. In the case of women, it is totally attributable to the slowdown in hirings (decrease in the proportion of those with less than a year's tenure). In the case of men, two-thirds of the

Table A-9

Proportion of Unemployment Spells Ending in Labour Force Withdrawal among Regions, 1981-82

	Both sexes		Men		Women	
	1981	1982	1981	1982	1981	1982
			(Per cent)			
Canada	43.4	47.2	37.6	41.9	49.7	53.9
Atlantic	50.1	52.5	45.5	47.6	56.0	59.2
Quebec	51.2	55.7	46.9	51.9	56.4	60.7
Ontario	39.2	42.6	31.6	36.2	46.7	49.9
Prairies	33.6	38.7	26.3	32.1	40.9	46.6
British Columbia	39.4	44.6	32.1	38.3	47.2	53.2

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

Table A-10

Discouraged Jobseekers and Their Impact on the Unemployment Rate among Age-Sex Groups, 1981-82*

	All ages	15 to 19 years	20 to 24 years	25 to 44 years	45 to 64 years
			(Thousands)		
Number of discouraged jobseekers:					
Men					
1981	59 - 119	8 - 21	15 - 28	21 - 38	15 - 28
1982	176 - 309	22 - 53	36 - 65	72 - 115	44 - 74
Women					
1981	57 - 127	8 - 21	11 - 24	29 - 60	10 - 22
1982	124 - 246	10 - 26	25 - 48	64 - 127	30 - 56
Both sexes					
1981	117 - 243	15 - 42	25 - 51	51 - 98	24 - 49
1982	299 - 559	31 - 77	62 - 113	139 - 240	74 - 130
Addition to the unemployment rate:			(Percentage points)		
Men					
1981	0.8 - 1.5	1.0 - 2.6	1.4 - 2.7	0.6 - 1.1	0.7 - 1.4
1982	2.2 - 3.7	2.7 - 6.2	2.8 - 4.9	1.9 - 3.0	2.2 - 3.6
Women					
1981	1.0 - 2.4	1.1 - 2.9	1.1 - 2.4	1.2 - 2.4	0.9 - 2.0
1982	2.3 - 4.3	1.5 - 3.8	2.5 - 4.6	2.3 - 4.6	2.5 - 4.6
Both sexes					
1981	0.9 - 1.9	1.0 - 2.7	1.2 - 2.4	0.9 - 1.6	0.7 - 1.5
1982	2.2 - 4.0	2.1 - 5.0	2.7 - 4.8	2.2 - 3.6	2.3 - 4.0

*In each pair of figures, the first represents the stock of those persons who, at any point of the given year, were no longer in the labour force, having left it after five months or more of job search; the second figure applies to those who left the labour force after three months or more of search. Separate estimates may not add to totals, because each is calculated independently and is rounded.

SOURCE Estimates by the authors, based on gross flow data provided by Statistics Canada.

reduction in the *EPR* is due to a lower hiring level, the rest being attributable to job separations – mostly layoffs – and relatively more important for workers with low tenures than for those with a higher seniority. Among age groups, we find the same differences between younger and older people, the former being mostly affected by reduced hiring levels and the latter importantly affected by layoffs (Table A-14).

Another interesting feature is revealed in these two tables: for some tenure categories and mostly among women, the proportion of the population employed increased between 1981 and 1982. Efforts to hold onto current jobs when job opportunities are relatively rare may induce a lower quitting rate and thus explain this increase in some partial *EPRs*. These phenomena work out to produce what would have not been expected *a priori* – namely, a longer average job tenure in 1982 than in 1981. In fact, the average expected tenure of jobs currently held increased from 9.0 years in 1981 to 9.7 years in 1982. As a consequence of the different ways in which they were affected by the recession, men and women do not present the same behaviour: the increase in the average expected tenure of jobs currently held was more pronounced for men moving from 12.5 years in 1981 to 13.9 years in 1982) than for women (moving from 6.1 years to 6.5 years during the same period).

Conclusion

The 1981-82 recession had a major impact on the unemployment rate, even though the measured impact was understated because of the increases in withdrawals from the labour force. Our findings indicate that, in the aggregate, a larger part of the increase in the unemployment rate was caused by higher incidences rather than longer durations of unemployment. The conclusion based upon the steady state analysis needs to be somewhat qualified for the following reasons. First, a detailed examination of the labour market flows suggests that, in raising the unemployment rate, job retention presented less of a problem than did jobfinding. Second, the average length of unemployment spells does not capture the importance of changes in the distribution

Table A-11

Comparison of Unemployment Rate Measures among Age-Sex Groups, 1981-82

	1981		1982	
	Official unemployment rate	Discouraged workers included*	Official unemployment rate	Discouraged workers included*
	(Per cent)			
Both sexes				
All ages	7.6	8.5 - 9.5	11.0	13.2 - 15.0
15 to 19 years	16.3	17.3 - 19.0	21.9	24.0 - 26.9
20 to 24 years	11.3	12.5 - 13.7	16.9	19.6 - 21.7
25 to 44 years	6.2	7.1 - 7.8	9.3	11.5 - 12.9
45 to 64 years	4.6	5.3 - 6.1	6.9	9.2 - 10.9
Men				
All ages	7.1	7.9 - 8.6	11.1	13.3 - 14.8
15 to 19 years	17.0	18.0 - 19.6	24.6	27.3 - 30.8
20 to 24 years	12.3	13.7 - 15.0	19.0	21.8 - 23.9
25 to 44 years	5.3	5.9 - 6.4	9.1	11.0 - 12.1
45 to 64 years	4.3	5.0 - 5.7	6.8	9.0 - 10.4
Women				
All ages	8.3	9.3 - 10.7	10.8	13.1 - 15.1
15 to 19 years	15.5	16.6 - 18.4	18.9	20.4 - 22.7
20 to 24 years	10.1	11.2 - 12.5	14.3	16.8 - 18.9
25 to 44 years	7.5	8.7 - 9.9	9.7	12.0 - 14.3
45 to 64 years	5.1	6.0 - 7.1	7.1	9.6 - 11.7

*See note to Table A-10.

SOURCE Statistics Canada, The Labour Force, cat. no. 71-001, and estimates by the authors, based on gross flow data provided by Statistics Canada.

of spell length. When long-term spells are considered, their contribution to total unemployment increased disproportionately in 1982. Finally, when discouraged workers are taken into account, the importance of long-duration unemployment increased even further.

The recession also strongly affected the employment side of the labour market. Hirings were at a much lower level in 1982 compared with 1981, and layoffs were quite numerous. Altogether, the net effect was a slight increase in the average duration of eventual tenure. This is particularly so if we consider, on the one hand, that fewer people had less than one year's tenure and, on the other, that persons with lower tenure were more affected by layoffs than those with longer tenure.

Table A-12

Comparison of Unemployment Rate Measures among Regions, 1981-82

	1981		1982	
	Official unemployment rate	Discouraged workers included*	Official unemployment rate	Discouraged workers included*
		(Per cent)		
Canada				
Both sexes	7.6	8.5 - 9.5	11.0	13.2 - 15.0
Men	7.1	7.9 - 8.6	11.1	13.3 - 14.9
Women	8.3	9.4 - 10.7	10.8	13.0 - 15.0
Atlantic				
Both sexes	11.7	12.9 - 14.5	14.4	16.6 - 18.8
Men	11.4	12.5 - 14.1	14.6	16.7 - 18.7
Women	12.1	13.6 - 15.7	14.1	16.3 - 19.3
Quebec				
Both sexes	10.4	12.3 - 14.0	13.8	17.1 - 19.9
Men	9.8	11.4 - 12.8	13.7	17.0 - 19.5
Women	11.3	13.7 - 16.0	14.0	17.4 - 20.7
Ontario				
Both sexes	6.6	7.2 - 7.8	9.8	11.7 - 13.1
Men	6.0	6.5 - 7.0	9.8	11.7 - 13.0
Women	7.3	8.0 - 8.8	9.8	11.6 - 13.4
Prairies				
Both sexes	4.5	4.7 - 5.1	7.4	8.4 - 9.2
Men	4.0	4.2 - 4.5	7.5	8.4 - 9.1
Women	5.1	5.4 - 5.9	7.1	8.1 - 9.2
British Columbia				
Both sexes	6.7	7.3 - 8.1	12.1	14.3 - 16.2
Men	6.0	6.5 - 7.0	12.4	14.6 - 16.1
Women	7.7	8.6 - 9.8	11.7	14.0 - 16.4

*See note to Table A-10.

SOURCE Statistics Canada, The Labour Force, cat. no. 71-001, and estimates by the authors, based on gross flow data provided by Statistics Canada.

Table A-13

Distribution of Employment-Population Ratio by Job Tenure, 1981-82*

	Both sexes		Men		Women	
	1981	1982	1981	1982	1981	1982
			(Per cent)			
Job tenure:						
Less than half a year	10.4	8.4	11.5	9.2	9.4	7.6
Half to 1 year	5.4	4.9	5.7	5.1	5.1	4.7
1 to 2 years	6.8	6.7	7.3	6.8	6.3	6.5
2 to 3 years	4.9	4.9	5.6	5.3	4.4	4.5
3 to 5 years	6.7	7.1	7.8	8.0	5.7	6.2
6 to 10 years	10.8	10.5	13.1	12.6	8.6	8.4
11 to 15 years	5.8	5.8	7.8	7.7	3.8	3.9
16 to 20 years	3.3	3.4	4.8	4.9	1.8	1.9
21 to 25 years	2.1	2.0	3.2	3.0	1.0	1.0
26 to 30 years	1.5	1.5	2.6	2.4	0.5	0.6
31 to 35 years	1.1	1.0	1.9	1.8	0.3	0.3
More than 35 years	0.9	0.9	1.6	1.6	0.3	0.3
Total EPR	59.8	56.9	72.7	68.4	47.3	46.0

*Job tenure by duration of in-progress spells.
SOURCE Estimates by the authors, based on job tenure data supplied by Statistics Canada.

Table A-14

Distribution of Employment-Population Ratio by Job Tenure among Selected Age-Sex Groups, 1981-82*

	Men				Women			
	20 to 24 years		40 to 44 years		20 to 24 years		40 to 44 years	
	1981	1982	1981	1982	1981	1982	1981	1982
				(Per cent)				
Job tenure:								
Less than half a year	22.8	17.9	7.3	6.4	18.3	15.3	7.2	6.0
Half to 1 year	10.5	9.4	4.1	3.9	10.7	9.6	4.6	4.1
1 to 2 years	13.3	13.0	6.0	5.6	12.7	13.1	6.8	7.1
2 to 3 years	9.9	9.4	5.0	4.9	9.1	9.4	4.3	5.3
3 to 5 years	11.8	11.9	8.6	8.6	9.8	10.7	8.3	8.5
6 to 10 years	6.8	6.5	17.7	16.8	4.9	4.3	14.5	14.4
11 to 15 years	0.3	0.3	16.1	15.9	0.1	0.1	6.9	7.5
16 to 20 years			13.8	14.2			3.9	3.7
21 to 25 years			9.6	8.8			3.4	2.6
26 to 30 years			3.2	2.7			0.8	1.0
31 to 35 years			0.2	0.2				
Total EPR	75.7	68.2	91.6	88.0	65.7	62.7	60.6	60.4

*Job tenure by duration of in-progress spells.
SOURCE Estimates by the authors, based on job tenure data supplied by Statistics Canada.

Notes

CHAPTER 1

1 Garraty (1978).

2 For a recent development of this idea, see Solow (1980).

3 For example, Azariadis (1975, 1981), Baily (1976, 1977), and Gordon (1974).

4 Friedman (1968) and Phelps et al. (1970).

5 Sargent (1976) and Sargent and Wallace (1976).

6 Feldstein (1973*a*, 1973*b*) and Hall (1970, 1972).

7 Tobin (1972) and Solow (1980), among others.

8 Akerloff and Main (1980, 1981).

9 Denton and Ostry (1965), Economic Council of Canada (1976, 1982).

10 McIlveen and Sims (1978).

11 Green and Cousineau (1976), Grubel, Maki, and Sax (1978), and Reid and Meltz (1979).

12 West and McKee (1980).

13 Fortin and Newton (1982).

14 Feldstein (1973*b*).

CHAPTER 2

1 Detailed information may be found in Macredie and Veevers (1979) and Macredie (1983).

2 For more information about the use of the Annual Work Patterns Survey, see Beach and Kaliski (1981).

3 See Luckett (1980).

CHAPTER 3

1 This statement requires the assumption of a constant flow into unemployment during the year, and is designed to isolate the impact of duration on all unemployment.

2 In the equation shown in Table 3-2 and in all other estimates, the hazard functions have a statistically significant negative coefficient for the variable $\ln t$, which indicates the diminution of the exit probabilities with time.

3 For details on heterogeneity and state dependency, see Heckman and Borjas (1981).

4 The Labour Force Tracking Survey (LFTS) provides a longitudinal data base covering five years 1973-78. It was conducted by the Department of Industry, Trade and Commerce (1979*a*, 1979*b*) for the specific purpose of analysing the process of workers' adaptation to layoffs caused by plant closures or cutbacks in production. The survey then focused on selected communities and on industries and plants with special unemployment problems. The individuals contacted gave their record of labour force experience for the five years. Information concerning personal characteristics, household status, education, occupation, and mobility was also gathered. The LFTS is described in detail in Hasan and Gera (1982).

5 See Hasan and Gera (1982).

6 See, for example, McGregor (1978).

CHAPTER 4

1 Statistics Canada, The Labour Force, cat no. 71-001 (monthly).

2 Ibid., January 1981, p. 78.

3 Such a hypothesis is also advanced by Perry (1972) and Clark and Summers (1979).

CHAPTER 5

1 The incidence and duration of employment are calculated by using the technique described in Chapter 2. Its application to the employment state is developed more fully in Chapter 6.

2 See de Broucker (1981) for the roles of supply and demand in determining the unemployment rate.

3 This result is in line with the findings of many researchers when analysing the impact of some institutional changes, such as the unemployment insurance program.

CHAPTER 6

1 In 1975, 11 per cent of the persons working part time were doing so, although they desired to work full time but were not able to locate such a job. These persons represented 18 per cent in 1980 and 25 per cent in 1982. Constantly over time, close to 70 per cent of those involuntary part-timers are women.

2 The methodology implies that we take explicit account of the age structure of the population; this is why the presentation of this section deals with age-sex demographic groups.

3 We develop the job tenure analysis for the year 1981 because of the constraints of the new labour force survey, 1976 being the first year possible to use in the calculation of historical retention rates. However, job tenure patterns are slow to change, and 1981 is presumed not to present a very different pattern from that in 1930.

4 It is clear that long-term job attachments are an important facet of the Canadian economy. Thus, the contract theory has the potential of explaining the observed behaviour of employment. For a more

detailed approach of this specific question, see Hasan and Magun (1983).

5 A "new job" is one that has lasted less than half a year at the time of the survey.

6 See Boulet and Lavallée (1984) for a detailed analysis of women's behaviour in the labour market.

CHAPTER 7

1 One such recent example is Denton, Robb, and Spencer (1980).

2 See also the methodology in Chapter 2.

3 From May to September, the Labour Force Survey contains a set of questions about labour market activity of young persons who declare themselves as full-time students in the previous March. In addition, they are asked about their expectation to be a full-time student the next fall. Thus, two categories are determined: the "returning students," those who expect to be full-time students the next fall, and the "other students," those who do not expect to return to school or those who are uncertain about doing so. These results are available from 1977 on. In July 1980 – July being the month with the highest participation rates for young people – the two proportions were as follows:

	Men 15 to 19 years	Women 15 to 19 years	Men 15 to 19 years	Women 15 to 19 years
	(Per cent)			
Returning students	86.4	85.9	65.7	61.8
Other students	13.6	14.1	34.3	38.2

4 See Marston (1976) and Feldstein (1973*a*, *b*, 1975).

5 Unfortunately, these data were not published for the two subgroups of persons aged 15 to 19 years and 20 to 24 years.

CHAPTER 8

1 We proceed to an analysis at the regional rather than at the provincial level in order to use more reliable data. Grouping provinces into regions (as for the Atlantic region and the Prairies) supposes some homogeneity among the provinces regrouped; we think that this is quite commonly accepted in Canada.

2 By withdrawal, we always mean withdrawal from the labour force. By entry or re-entry rate, we mean the proportion of persons not in the labour force who enter or re-enter the labour force in a given month.

3 Of course, we must acknowledge that Ontario bears the highest weight in the Canadian average; but we do not think that this deters us from our conclusions.

4 We first calculate monthly seasonal deviations (seasonally adjusted rate minus observed rate). Then we calculate a seasonal rate for each month of the year (seasonal deviation for the month minus the highest negative seasonal deviation during the year). And, finally, the annual seasonal rate is the arithmetic mean of the monthly rates. Beaudry (1978) did this for the unemployment rate; we extend the methodology to the employment population ratio.

5 We should not forget that, as we have seen in the previous chapter, a large part of youth employment is highly seasonal; obviously this is one underlying component of the seasonal effect that we observe here, but we can reasonably assume that this specific phenomenon should not be very different among the various provinces and, in any case, is not sufficient to explain the large differences noticed.

APPENDIX

1 These differentials cannot be directly compared with those found earlier in this Appendix which are obtained with the help of the steady state assumption.

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